Annual Number

15 Cents

The OIL and GAS JOURNAL

PRODUCING REFINING ENGINEERING MARKETING

Published Every Thursday TULSA, OKLAHOMA, JANUARY 31, 1929 $6.00 a Year

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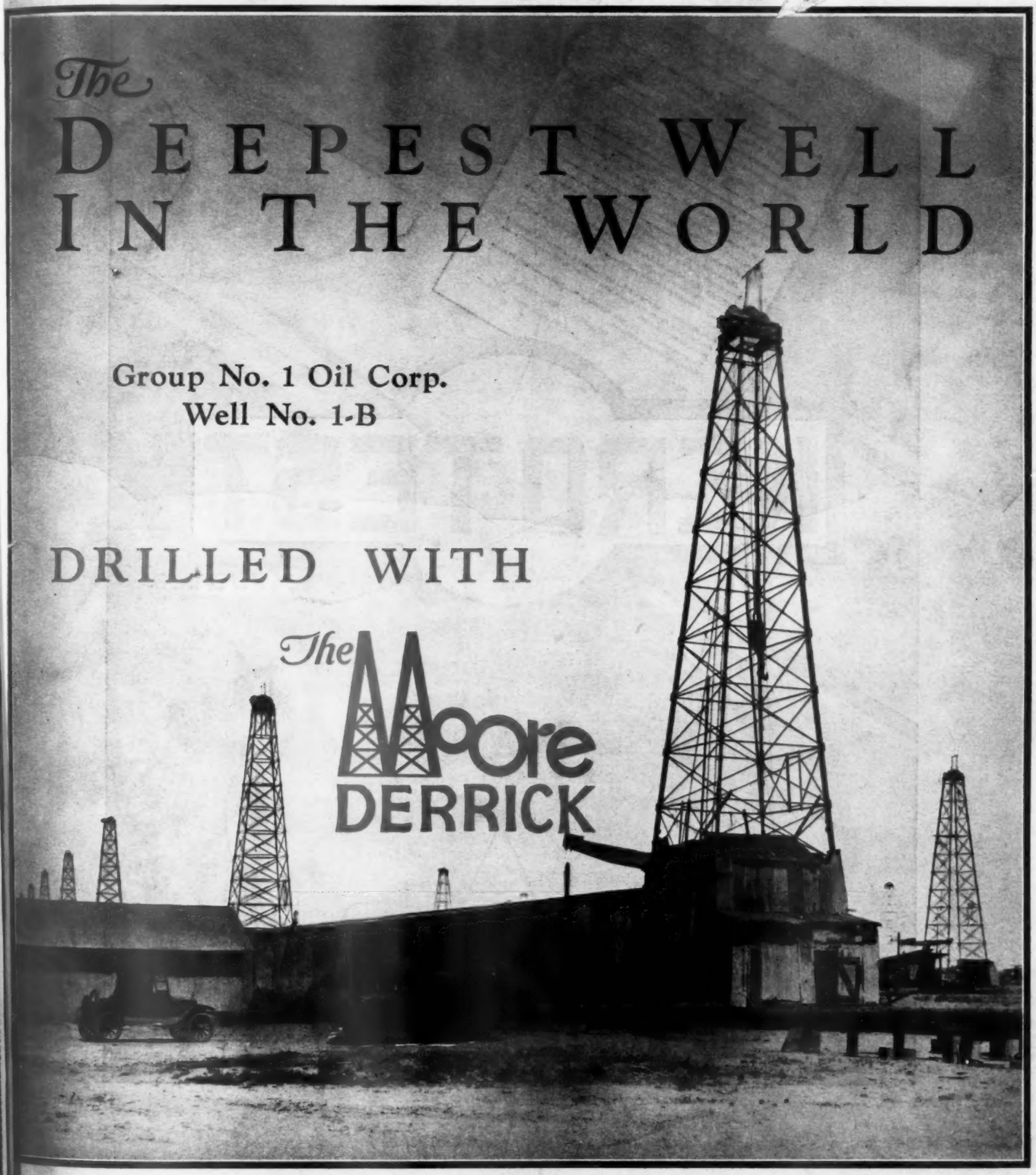

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Pittsburgh Testing Laboratory

Pittsburgh Pa. U. S. A. December 5, 1938.

REPORT OF INSPECTION AND TEST OF KEROTEST MANUFACTURING COMPANY

One Type 6-2 KERO TEST Steel valve Number 47,418

Manufactured by Kerotest Manufacturing Company

Shipped to Oil Well Supply Co., Kelly Ave. & Byrkit St., Pittsburgh, Penna.

Used by Monsanto Chemical Co., Anniston, Alabama Agent's No. P-5804 Customer's No. Ord. # 8681

S. O. No. 17581 with ( ) Removed with

Spec ( ) 6-6/47 Type

Threaded for 6-2/47 10-thread A.P.I. Tapered Stem is made of Nickel Steel, machined throughout to body and as indicated Seats are made of steel, stellited Wedge is solid and as indicated Hand wheel is cast iron Weight 1380 lbs.

Day of test December 5, 1938

All parts entering into the construction of this valve are STEEL except as noted above. Inspectors private mark PTL stamped on each face of valve.

THIS IS TO CERTIFY that the above numbered valve has been carefully inspected during the process of manufacture and assembly, and has been tested to a pressure of 5000 pounds per square inch for a period of 24 hours using KEROSENE as the testing medium.

At the conclusion of the test a pressure of 1400 pounds per square inch was applied against one side of the gate, with the gate in the closed position, and while subject to this pressure, the valve was opened.

The gate was again closed and the pressure brought up to 5000 pounds per square inch and held for a period of 30 minutes.

PITTSBURGH TESTING LABORATORY

45/47

KEROTEST

Cast Steel

EVERY Kerotest valve is certified by the Pittsburgh Testing Laboratory which witnesses the famous Kerosene Test and places their stamp of approval on each satisfactory valve before it is shipped from the factory. This certified strength is a distinctive feature of all Kerotest Valves and Fittings.

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NORWELL-WILDER HARDWARE CO.
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XUM

Overproduction Forces Lower Prices

Highest daily average estimated total production in 1928, week ended Dec. 29, 2,585,844 bbls. Lowest in 1928, May 19, 2,338,241 bbls.

Curtailment of Output in Oklahoma Being Considered. Development of Deep Zones in California Big Factor

By Andrew M. Rowley

Highest daily average estimated light oil production in 1928, week ended Dec. 29, 2,158,134 bbls. Lowest in 1928, Mar. 3, 1,927,713 bbls.

Crude oil price reductions, the inevitable result of overproduction, announced during the past week in a majority of the producing areas of the country constitute a message to the producing end of the petroleum industry that past experience has taught all to understand perfectly. While many operators apparently were surprised when the lower prices were announced, those who had kept in close touch with conditions and developments in the different areas knew that such action on the part of the major purchasing companies was certain. It is hard to get around the law of supply and demand and overproduction of crude oil, especially during a season of minimum demand, can mean but one thing—lower prices.

There are indications, however, some improvement in the situation is possible during the next six weeks or so. Much of the big increase in output recently has come from California. It is felt in some quarters that if a prolific deeper horizon is not developed at Santa Fe Springs, California production will begin to register a substantial drop in about 30 days. During the meantime, however, further increases may be expected from that State.

It is understood operators in Oklahoma are getting together to endeavor to formulate a plan by which production in that State will be held more nearly to market requirements, it being felt that if the plan contemplated becomes effective probably 75,000 barrels daily will be pinched in in the flush fields. The plan also contemplates the abandonment of all unnecessary drilling at this time.

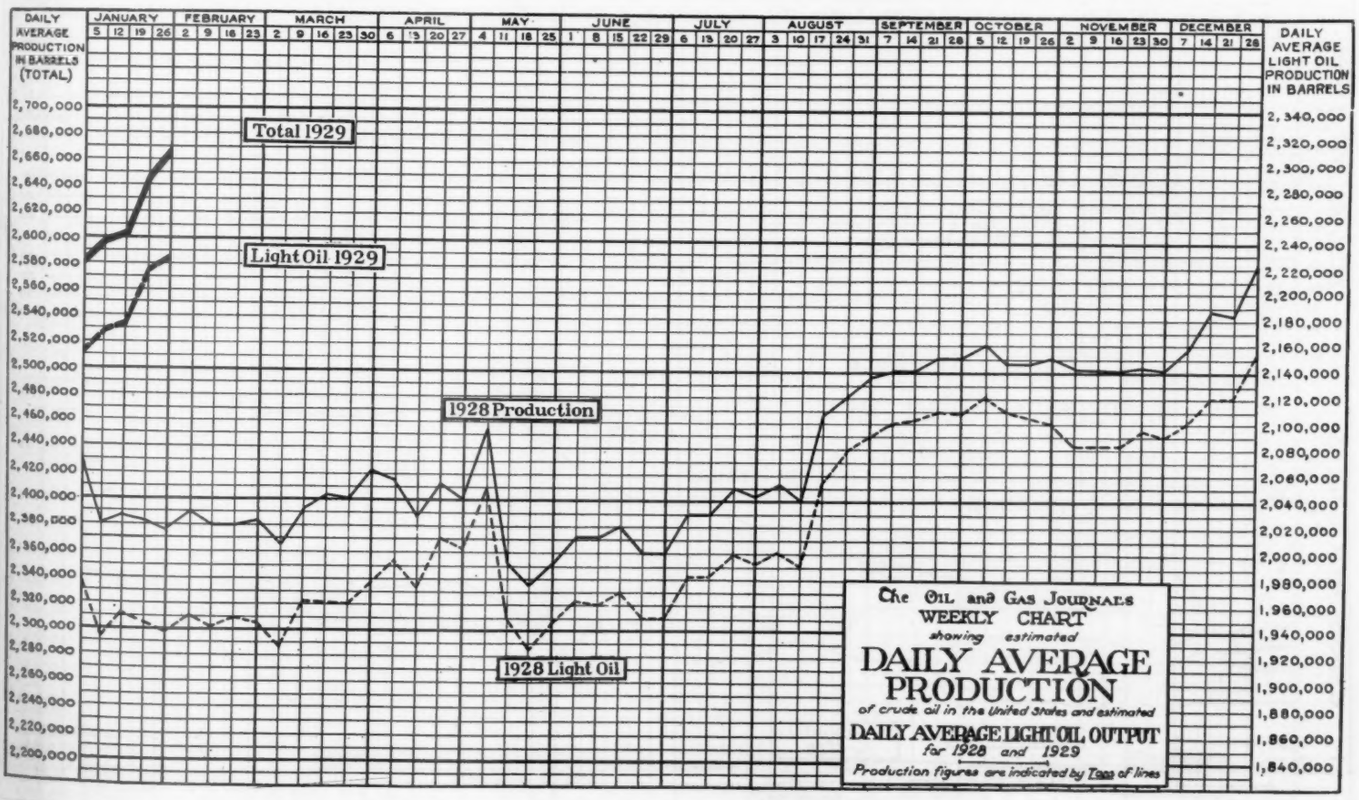
As has been pointed out on numerous occasions, the immediate remedy for the present situation is a substantial curtailment of production. Such a remedy lies entirely in the hands of all the operators in the different flush fields. Unless such a remedy is applied and made effective quickly, it is not improbable further crude oil price readjustments may be made.

PRODUCTION IN THE UNITED STATES

Estimated daily average production of light and heavy gravity oil in the United States for week ended January 26, and a comparison with the previous week follows:

	Jan. 26		Jan. 19	
	Light	Heavy	Light	Heavy
Oklahoma—				
Tonkawa	11,185	.....	12,215	.....
Burbank	23,220	.....	23,285	.....
Other Osage Fields	26,165	.....	26,730	.....
St. Louis-Pearson	130,040	.....	131,280	.....
Cushing and Shamrock	20,735	.....	21,070	.....
Bristow	19,020	.....	19,095	.....
Allen	27,840	.....	28,285	.....
Seminole	291,110	.....	288,265	.....
Northern Miscellaneous	116,135	.....	116,210	.....
Southern Fields	57,915	.....	58,070	.....
Total Oklahoma	723,365	.....	723,505	.....
West Texas—				
Hendricks	176,854	.....	172,221	.....
Yates	73,050	.....	74,762	.....
Remainder	121,136	.....	122,057	.....
Total West Texas	371,040	.....	369,040	.....
North Louisiana	30,583	5,750	30,445	5,840
Arkansas	26,660	51,460	26,490	51,760
North Central Texas	136,162	.....	138,377	.....
Texas Panhandle	61,065	.....	59,700	.....
East Central Texas	21,676	.....	21,551	.....
Kansas	97,315	.....	97,110	.....
Total Mid-Continent Area	1,467,866	57,210	1,466,218	57,600
Gulf Coast	.....	145,635	.....	139,150
Southwest Texas	.....	48,237	.....	45,971
Eastern	112,000	.....	113,000	.....
Rocky Mountain Area	70,108	.....	74,591	.....
California—				
Santa Fe Springs	170,000	.....	155,000	.....
Long Beach	180,000	.....	183,000	.....
Torrance	2,000	13,500	2,000	13,500
Huntington Beach	48,000	.....	48,000	.....
Elwood	17,500	.....	18,000	.....
Inglewood	16,000	11,000	16,000	11,000
Ventura Avenue	53,000	.....	53,500	.....
Seal Beach	28,000	.....	28,000	.....
Remainder of State	60,000	167,000	59,000	166,000
Total California	574,500	191,500	562,500	190,500
Total United States	2,224,474	442,582	2,216,309	433,221
Grand Total		2,667,056		2,649,530

Total Increase, 17,526 Bbls.; Light Oil Increase, 8,165 Bbls.



Reduce Gasoline Prices in Oklahoma

Action by Major Refiners Follows General Decline in Crude Oil Schedules. Lower Tank Wagon Prices Disturb Market

By C. O. Willson

A combination of a crude oil price reduction in the Mid-Continent fields and a general decline in gasoline tank wagon and service station prices in the middle western states was the important developments of the past week that has been reflected directly in the refinery tank car market of Oklahoma (Group 3).

These reductions in crude oil and retail gasoline schedules which are explained in detail on the market pages of this issue have already resulted in important price changes at Oklahoma refineries with the probability that additional adjustments will be necessary during the coming week. Briefly summarized, the refinery situation on Tuesday when compared to the previous week was as follows:

Refinery Gasolines—A general reduction of 1 cent by the major refineries establishing a 7-cent price to the trade on 58-60 U. S. Motor gasoline, 7½ cents on 60-62 400 endpoint and 8 cents on the 64-66 375 endpoint. These prices were for domestic shipment. Similar reductions were made in other grades.

Natural Gasolines—Buyers have purchased practically all the Grade A and Grade AA available for shipment over the remainder of January and prices on these two grades were higher than a week ago. The remaining grades were available in larger quantities for spot shipment and prices were unchanged.

Kerosene—Prices one-fourth cent lower.

Fuel Oil—Several refiners since the first of the year made long-time contracts with railroad buyers on a base price of 70 cents per barrel, the price to move up or down with 60 per cent of the posted price of 36 gravity crude oil. This gravity was reduced 16 cents last week, which means that the railroad contract price will be reduced 9.6 cents per barrel, or a net price of 60.4 cents at the refineries. Some of the contracts protected the refiner with a minimum price of 70 cents. The spot market on fuel oils was not changed. Very little reduction was made in the lower gravity crude oils, a reflection of the fact that schedules on these grades were already low and in a stronger market position than the high gravity crude oils. The high gravity fuel oils with low cold test are strong in Oklahoma and the high cold test fuels on Tuesday apparently were no weaker than they were a week ago.

Gas Oils and Distillates—The better grades of distillates and gas oil continue strong. Cold weather in the northern states brought an exceptionally heavy demand for all distillates and gas oils suitable for furnace oils and prices are generally higher than they were a week ago.

Tank Wagon Changes

The foregoing explains the refinery situation on Tuesday. These changes were brought about by the reduction in crude oil prices. By reducing their gasoline price 1 cent a gallon the Oklahoma refiners had passed on to their jobbers all the saving that accrued to them due to the crude oil reduction. The average gravity of crude oil refined in Oklahoma outside the South Oklahoma area is 38 degrees A.P.I. This grade was reduced 20 cents per barrel. The average refinery secures about 20 gallons of gasoline from a barrel of this grade crude oil so that the 20-cent reduction in crude oil prices is offset by the 20-cent reduction in the value of gasoline obtained from a barrel of raw material.

On Tuesday it was impossible to determine just what the reaction in the refinery market would be to the reduction of 1 cent in gasoline tank wagon and 2 cents in service station prices effective in all the states of the Middle West comprising the Standard of Indiana marketing territory. This reduction was announced Monday and became effective Tuesday morning.

Many market observers believe that this reduction in the retail market was already discounted in the refinery market and no further reductions will materialize. The unexpected action of the Standard of Indiana in reducing the service station price more than the tank wagon, thus establishing a differential of 1 cent

(Continued on Page 252)

REFINED MARKET BAROMETER

A reduction in crude oil prices covering the principal fields of the United States except California, Pennsylvania and West Texas was reflected in generally lower refinery tank car prices at refineries during the past week. The further spread of reductions in gasoline tank wagon and service station prices accentuated this weakness at refineries. The decline in refinery gasoline prices totaled 1 cent in several refining areas. Outside of the West Coast kerosenes were weak and lower prices were reported in some sections. The lower crude oil prices were not reflected in the fuel oil prices, which were generally steady. Gas oils also unchanged. All oils consumed as furnace oils are strong and average prices are higher. The best grades of natural gasolines were strong in the Mid-Continent and prices higher. Demand for Diesel oils strong. Neutral oil prices are unchanged. Some recessions in prices from the recent high levels established for steam refined cylinder stocks and bright stocks is reported in the East, but the market on the whole is firm. Wax prices were lowered during the week in the New York market.

Mid-Continent—Refinery gasoline prices in all areas lower following reduction in crude oil price schedules. Kerosene prices also lower except North Texas, where prices are firm. Low cold test distillates and gas oils strong. Fuel oil prices lowered in Arkansas. Grades A and AA natural gasoline higher. Other grades firm. Lubricating oils and wax unchanged.

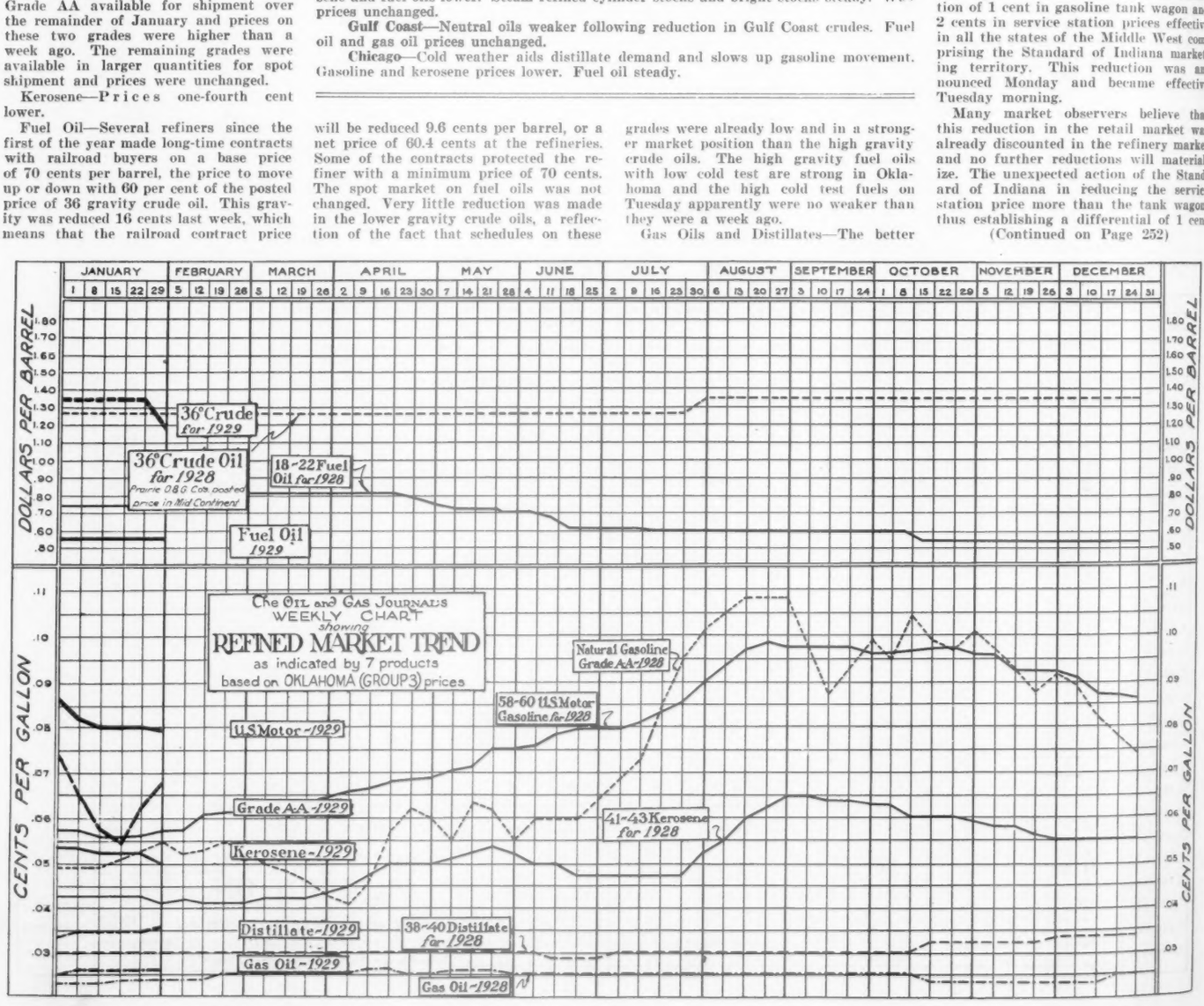
East Coast—Gasoline prices for domestic movement lower. Kerosene soft. Good movement of bunker fuel oil and prices unchanged. Diesel oil prices unchanged. Most grades of paraffin wax lowered due to slackening in both export and domestic demand.

California—Refinery gasoline prices lower. Fuel oil weak. Minor changes made in red neutral oil prices.

Pennsylvania—Gasoline movement slow and prices lower. Some grades of kerosene and fuel oils lower. Steam refined cylinder stocks and bright stocks steady. Wax prices unchanged.

Gulf Coast—Neutral oils weaker following reduction in Gulf Coast crudes. Fuel oil and gas oil prices unchanged.

Chicago—Cold weather aids distillate demand and slows up gasoline movement. Gasoline and kerosene prices lower. Fuel oil steady.



Deep Zones in California Big Factor

Sharp Decline in Production May Start in About 30 Days Unless New Horizons at Santa Fe Springs Change Picture

By J. E. Eaton
Consulting Geologist

The current peak of production for California may be reached in the near future at a figure in the neighborhood of 800,000 bbls. Indications are that California may be on the down grade by the last of February or early in March. It is entirely possible, however, that deeper zones may be discovered at Santa Fe Springs, and in such an event the decline would be temporary or perhaps long delayed.

Conditions at Santa Fe Springs remain essentially as outlined by the writer two months ago. The lower Pliocene sands are productive only on top of the structure. Their portions yielding clean oil are comparatively thin, and water troubles are prevalent on their edges. It is indicated that the peak estimate given in the engineers' report some time ago was about 100,000 bbls. too high for these particular zones. Still deeper sands in Miocene rocks seem to be the only thing that can stop a rapid production decline in California in the near future, and can save many late wells at Santa Fe Springs from being a losing proposition. Such deeper sands may be found in the near future, but they are an unknown quantity at present.

The new Lawndale Field is a townlot area which need cause little alarm as regards overproduction due to great depth to known sands and their moderate yield. Some of the large acreages should prove profitable, but the field may be another graveyard for the small operator. The writer is more or less familiar with the geology of this field, having recommended the area to one of the larger companies four years prior to discovery.

Elwood is less than half drilled, but production there will not increase materially due to conservative development and the probably restricted productive area. Kettleman Hills will not be felt until the last of this year or the first of next.

There seems little to prevent a sharp decline in California's production in about 30 days unless still deeper sands at Santa Fe Springs are discovered. Such sands may be discovered and may change the picture, but they cannot be counted until they are hatched. Production in California will rise rapidly during the next 30 days, but the oil industry may discount this particular rise and need worry only about the possible deeper zones, which, barring an opening of the Inglewood deep, seem to hold the fate of California in 1929.

Revolutionary Experiment

By far the most interesting recent development in California and one more important to both the petroleum industry and to the public than any single oil field, is a revolutionary experiment in marketing being conducted by the larger oil companies. The principal features with regard to this experiment were outlined by Mr. Stockman in The Oil and Gas Journal for January 3 (page 29), but their importance warrants further discussion.

Prior to this experiment, the larger marketers retailed a part of their output themselves, and a part through independent service stations. The troubles which have accompanied this system are a matter of record, and are well known. They have been aggravated by the overproduction and abnormally low price of crude oil to such an extent that at times there has been a difference of as much as 6 cents in the retail price of gasoline sold on opposite corners. The writer called attention to this spread and its evils in a series of articles published last summer, a short time before a raise in crude prices partly lessened the pressure.

Under this previous system the larger oil companies were between the devil and the deep sea. (1) If these companies sold gasoline in bulk to small retailers without restriction on disposal, the company stations were undersold by their own product on opposite corners and became unprofitable as a whole. (2) If they sold to retailers with a restriction on retail price they were in restraint of trade. (3) If they refused to sell their excess at a low bulk price this excess accumulated disastrously and small refiners and service stations cut deep into their sales with distress gasoline. (4) If they dropped the official service station price to meet the marketer of distress gasoline, profits vanished, the price of crude oil tumbled, and the oil industry in general started to slide into the black hole which it has barely avoided during the past two years. It was, as stated, either the devil or the deep sea, with the frying pan and the fire included for good measure.

Past Efforts Fail

Generally speaking, the larger marketers oscillated between the first and third alternatives, i.e., they alternately resigned themselves to letting small rehandlers undersell them with their own product, and then tightened up and only grudgingly disposed of quality gasoline to dealers who resold it at a retail price below that which, considering service, the refiner computed to be cost.

Under either alternative the result was equally disastrous. Superfluous service stations sprang up—about twice the number necessary to handle the available trade. Whether retailing "standard" gasoline or "bootleg," the small marketer undersold the larger in price and took business away from him. The gallonage of some large marketers slumped alarmingly.

The basic fault with this system did not lie primarily with any single person, company, or group. It lay, as the writer has pointed out in previous articles, basically in the abnormally low prices for crude oil due to world-wide overproduction. This overproduction caused the so-called "complete" oil companies to become "incomplete" because they produced, accepted, and refined more oil than they could dispose of in the completed product. The so-called complete company is normally a rather ideal arrangement, but the companies could not remain complete because of their excess output. Crude prices were near bottom, could not be raised sufficiently, and to cut them further would merely start a depression which would come home to roost.

There seemed to be no way out. It was a vicous circle for producer, refiner and marketer. It was a case of muddle along, pray, and hope that a few remnants of prosperity might accidentally survive.

Then someone happened to remember the oldest principle of marketing. That under a competitive system prices normally oscillate until they reach a natural level determined by supply and demand. That trouble follows upon any attempt to maintain prices either above or below this natural level. That a natural level is regulated by output and demand, and not by printing figures. That to control such a level under free competition the output must be restricted or the demand increased.

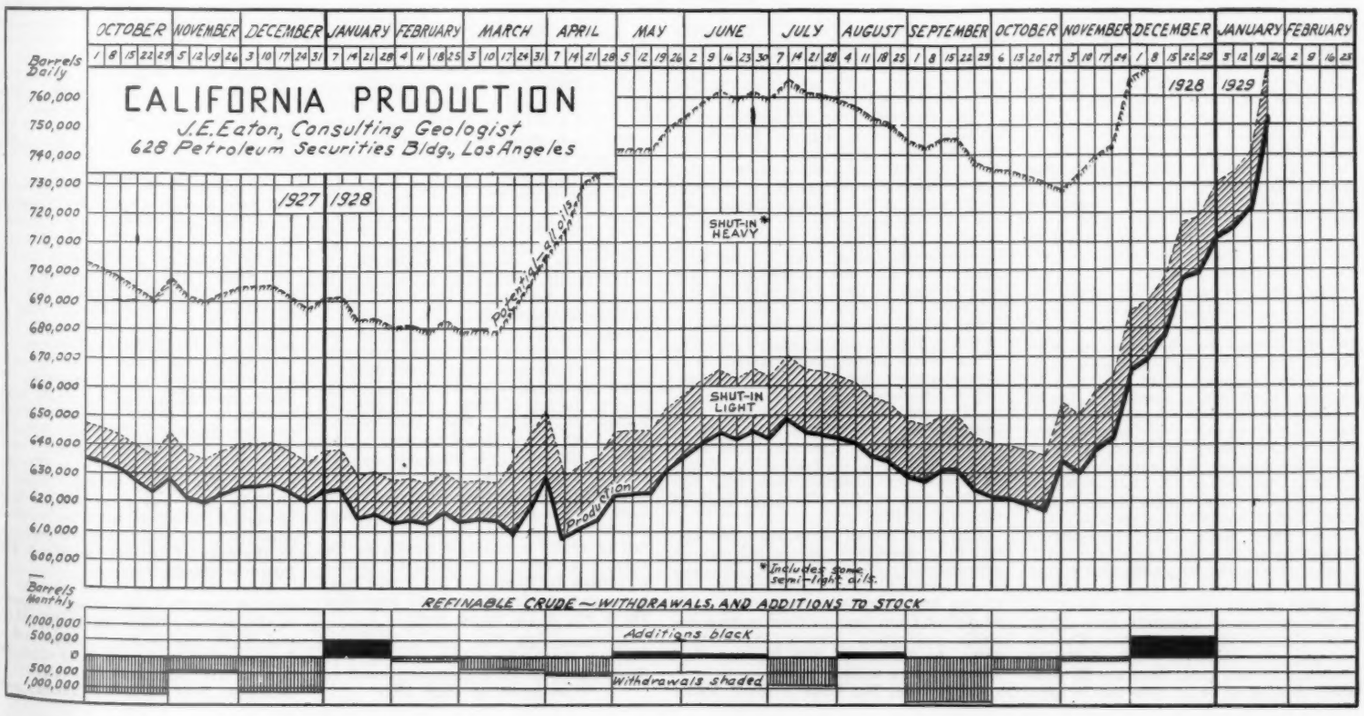
Unvarnished Competition

Various companies who produce and refine oils in California came to the conclusion that they were playing the middleman's game and that he was beating them at it. They saw that they were in the position of a knight in cumbersome armor who is matched against a mobile longbowman. They decided that the wisest thing to do was to retire at least temporarily from retail marketing, sell in bulk to retailers, and let these retailers fight it out among themselves.

Pursuant to this decision, they have leased out nearly all of their stations to former employes whom they deem to be honest and reliable. Details are worked out by each company and vary somewhat accordingly. Briefly summarized, the general plan of retreat is to lease a station to a competent employe, sell him gasoline upon the same terms independent retailers receive, i.e., so much off from an official service station price, and then allow him to name his own retail price.

This system does away with much expensive and burdensome supervision, general red tape, and worry. It gives the

(Continued on Page 104)



Another Big Play Planned for Kansas

Strip 44 Miles Long in Central Part of Sunflower State Will Be Scene of Active Development Early This Year

By J. L. Dwyer

It is just about 10 years since the famous old Eldorado Field of Butler County passed over the hill and began to settle down to the monotonous business of production, and, judging by the outlook, the Kansas fields are about to experience another major activity. The work which has been started in the central district of the state may never assume the proportions which the output of the Eldorado Pool reached, but there is a strip some 44 miles in length which will be the scene of the hottest play the Mid-Continent Field will witness during the next six months.

The strip mentioned is represented by the territory which is situated between the Wright Pool of Sedgwick County, and the new find of the Empire Gas & Fuel Co. in the Marion County field. The Wright Pool and its tributary producers, located near the city of Wichita in Sedgwick County, is centered around Townships 25-1w and 25-1e, 26-1w and 26-1e, and the new Empire discovery is located in Section 12-19-2e.

The interest in the Marion County region was crystallized when Courtney B. Davis drilled a well in Section 7-19-3e. This well was never a sensational producer, and about the best record it ever made was 50 bbls of oil and 8 bbls. of water in one day. It was of sufficient importance, however, to stimulate some little drilling, and the Empire company, owning an offset, drilled it to the chat formation and found that horizon dry. The fact that the discovery well had found the chat formation running extremely high was considered sufficiently important to warrant the drilling down of the Empire well, and accordingly it was drilled to a formation found at 2,823 feet, and the hole filled very rapidly with oil. The well was swabbed down and cleaned out and at last reports was producing 375 bbls of oil daily by the swab, and the swabbing was not continuous.

Producing Sand Discussed

The producing sand in the Empire well has been the source of some discussion, and while all geologists have not agreed upon its identity, there is a strong belief that it is the same stratum which is producing in the Wright Pool of Sedgwick County. This formation is found at 3,400 feet in wells in the south end of the Sedgwick operation, while the Marland Production Co.'s No. 1 Goodrich in the north end of the field found it at 3,100 feet. It is not unreasonable to assume that it shows a rise of about 600 feet in traveling the 44 miles between the Wright Pool and the Marion County field, especially when it is considered that the latter spot has long been touted as a regional "high" and therefore the different formations might be expected in a higher position.

The finding of such a good well as the Empire No. 1 Seiderman, will at least result in the country lying between it and the Wright Pool being the scene of one of the most interesting lease plays in the Mid-Continent. In this respect, however, there are a number of blocks of leases directly in the trend of the play. The core drill has been very active in this sector, and there are 20 blocks of leases having an average of 3,000 acres to the block in this region. A total of 60,000 acres is under lease in solid blocks in this strip, and there are innumerable companies which have made checkerboard plays directly along the line of the trend. It seems reasonable to predict that within 60 days there will be very few leases available on this strip.

The strip runs northeast from Sedgwick County through Harvey County, and into the southeast part of Marion County. At this time, there are 65 wells either drilling or being prepared to spud in this region. The average cost of the completed wells in the Wright district is $30,000. The wells now under way therefore will represent a total drilling cost of $1,950,000 when they are finished. The other expenditures which will be made in this area will, of course, be determined by the measure of success which the drilling activity now under way enjoys.

Drilling Methods

While the first drilling in the Wright Pool was done with cable tools, there are now a number of rotary drilling outfits working in the Central Kansas region. It is believed that the rotaries will establish much better drilling time in getting the wells down. If the rotaries have anything like the success they enjoyed in the Greater Seminole and St. Louis Pools of Central Oklahoma, the wells in this part of Kansas should be drilled from the grass roots to the sand in 25 days, including time for cementing the pipe. In the drilling which has been done with cable tools, there have been two strings of casing run, excluding the surface pipe. In the use of rotaries, the leaving of only one string of pipe in the hole (which is anticipated) will probably result in a slight lowering of the cost of completed wells, and also afford the additional advantage of improved drilling time, thereby eliminating the damage of property drainage.

From a geological standpoint, this territory is especially interesting. It was first brought to attention in the old days when the various pools of western Butler and eastern Marion County were discovered. There was a natural attempt upon the part of the operators to drill in various directions from the Florence-Peabody districts, as well as from the Eldorado-Augusta regions, in the hope of finding other pools of similar character. There was a lapse of many years before the drill found any showings of importance, and the map accompanying this story shows the dotted dry holes which appear at intervals over the region.

Result of Core Drilling

It was slightly less than two years ago that the first core drilling was done in this region, and to the core drill with its structural revelations, may directly be traced the present success of the territory. The majority of the blocks of acreage held in this part of the state were taken as a result of core drill discoveries. At one time, there were 15 core drills working this part of the State.

Regarding the exact identity of the formations which produce in the new finds of the region there is some discussion. For some time the theory has been advanced that the old Florence and Peabody Pools have been producing from a stratum which is very closely related to the Viola limestone of central Oklahoma. When the first well of the Wright Pool found production it was thought that the oil was coming from a formation which correlated with the Simpson sand of central Oklahoma. When the Empire well was discovered last week, the majority of geologists concluded that the oil in this well was coming from a formation similar to the formation producing in the Florence-Peabody Fields. When it is considered that the normal section in central Oklahoma finds the Viola limestone immediately above the Simpson sand, the very close relation of the two formations will be observed. It seems possible that the oil in central Kansas may be coming from the junction point of these strata. The Simpson sand really has some limey characteristics. It is described (Micropaleontological Society of Tulsa) as "lithographic-dolomitic limestone."

Maintain Production

The first good well of this section was discovered in August 1927. It was the Gypsy Oil Co., Marland Production Co. and Bu-Vi-Bar Petroleum Co.'s No. 1 Wright, Section 12-26-1w. It found a productive formation at 3,400 feet and had an initial production of 1,800 bbls. daily. This was the well which started the interest of this part of the state, and which led to a complete revision of the possibilities of the territory. It was the most important well which had been drilled in Kansas in many years. When first completed, there were many who held that the well was a freak, and that it would show a rapid drop, but when it held its output steadily for several months, this thought was dispelled. From an operating point of view, there is this in favor of all the wells which have thus far been completed in the region; they maintain their rate of production exceptionally well, and show a very limited decline. In this respect they differ from the majority of wells which have been found in both the Simpson sand and the Viola lime in Oklahoma, for in the latter region, both of these formations have produced wells which were exceptionally flashy in output. There are innumerable instances of Viola and Simpson wells in Oklahoma having a good initial output, and a rapid decline. The past performance of these formations in Oklahoma was chiefly responsible for the hesitancy with which development was conducted in Kansas following the discovery of the first Wright well; but when the stability of the production was noted, this hesitancy was rapidly discarded.

The seven producing wells of the Wright area are now making a combined output of 7,650 bbls. daily, with several important wells on the outer fringe of the activity encountering excellent showings. Of the wells completed in the Sedgwick region, the Marland Production Co.'s No. 1 Goodrich had the best initial production. This well which found the pay at 3,100 feet was rated between 3,000 and 5,000 bbls. at the time of discovery. While this rate of production was not maintained, the well is still making 1,700 bbls. of oil and reported as cutting slightly. The amount of the cut is not deemed of sufficient importance to indicate any grave danger, and offset drilling is now in progress.

May Mean Another Pool

A very important well of this territory is the Barnsdall Oil Co.'s No. 1 Samuels, in Section 24-25-1e. This well is located 3½ miles east of the Marland Goodrich well which struck a formation thought to be the chat at 3,055 feet, and swabbed 70 bbls. the first three hours. While the position of the chat in this well seems rather low, the fact that it carries oil is interesting, and it may be the forerunner of another pool for the territory. Another interesting wildcat which had a showing of oil is the well of the Connell Oil Co. and T. B. Slick, Inc., in Section 27-25-1w. This well is 4 miles northwest of the Wright Pool wells. The wildcat well of Van Zant & Mason in Section 19-25-1w also had a showing of oil in an upper formation, but this was disregarded and the well is now drilling deeper in the hope of finding the Wright Pool formation productive.

There have been some reversals of opinion regarding the prospects of wells in this region. When the Aladdin Oil Co. and T. B. Slick's No. 1 Smyser well in Section 36-25-1w was drilling within 200 feet of the pay sand, the majority of geologists believed it was running much

WEST TEXAS POOLS HAVE PRODUCED MORE THAN 193,810,931 BARRELS

By James H. Dameron

FORT WORTH, Tex., Jan. 25.—Since the discovery of the first well in West Texas, figures compiled show the total recovery from the 16 producing counties to be 193,810,931 bbls.

First production in West Texas was in Mitchell County late in 1920 when the Westbrook Pool was opened. The discovery well was completed the latter part of the following January. The real development of the Permian Basin, however, started soon after the discovery of the Big Lake Field in Reagan County by the Texon Oil & Land Co. in May, 1923. Since then four major pools have been brought in that have produced 25,000,000 or more bbls. of oil each.

The Hendricks Pool in Winkler County has by far shown the greatest recovery of any of the fields yet discovered. It is a greater pool than its nearest rival in recovery because it has been drilled more rapidly and permitted to produce with less restraint than Yates, which has a greater potential. After a little more than two years of productive life, Winkler County has produced more than 61,800,000 bbls. of oil. The great bulk of this was in 1928.

Big Lake, almost three years old and not fully developed, has a recovery of approximately 36,500,000 bbls. The pool is estimated to have approximately 200 proven but undrilled locations that will be drilled from time to time to keep the pool's production around 18,000 bbls. daily. At the end of 1928 Big Lake had 231 producing wells.

Crude from Big Lake is much higher in gravity than that produced in the other major areas of West Texas. It tests around 37 degrees and is sold under contract for a price based on the average price paid by major purchasers for similar crude gravity in the Mid-Continent.

Many are of the opinion that Big Lake will have a productive life of probably 20 more years and it will be years before it is fully developed. In addition it has the prospects of increasing its ultimate yield tremendously from the 8,500-foot pay which is showing itself more and more to be a dominant factor in the field's future. This same deep pay may or may not be found in Hendricks, Yates or Church and Fields.

Crane and Upton Counties follow close on the heels of Winkler County in recovery with more than 55,000,000 bbls. since the discovery of the McCamey district in the fall of 1925. The Church and Fields and McElroy Pool, discovered in May, 1926, has produced the bulk of this oil and like Big Lake this pool has not been fully developed.

Yates, the greatest potential producer of them all, has produced a little more than 26,000,000 bbls. since its discovery in the fall of 1926. It has been producing less than 5 per cent of its potential production since its discovery, being held down by proration. It also has the least storage of any of the major areas.

Accompanying this article is a map showing the producing counties in West Texas, date of their discovery, total re-

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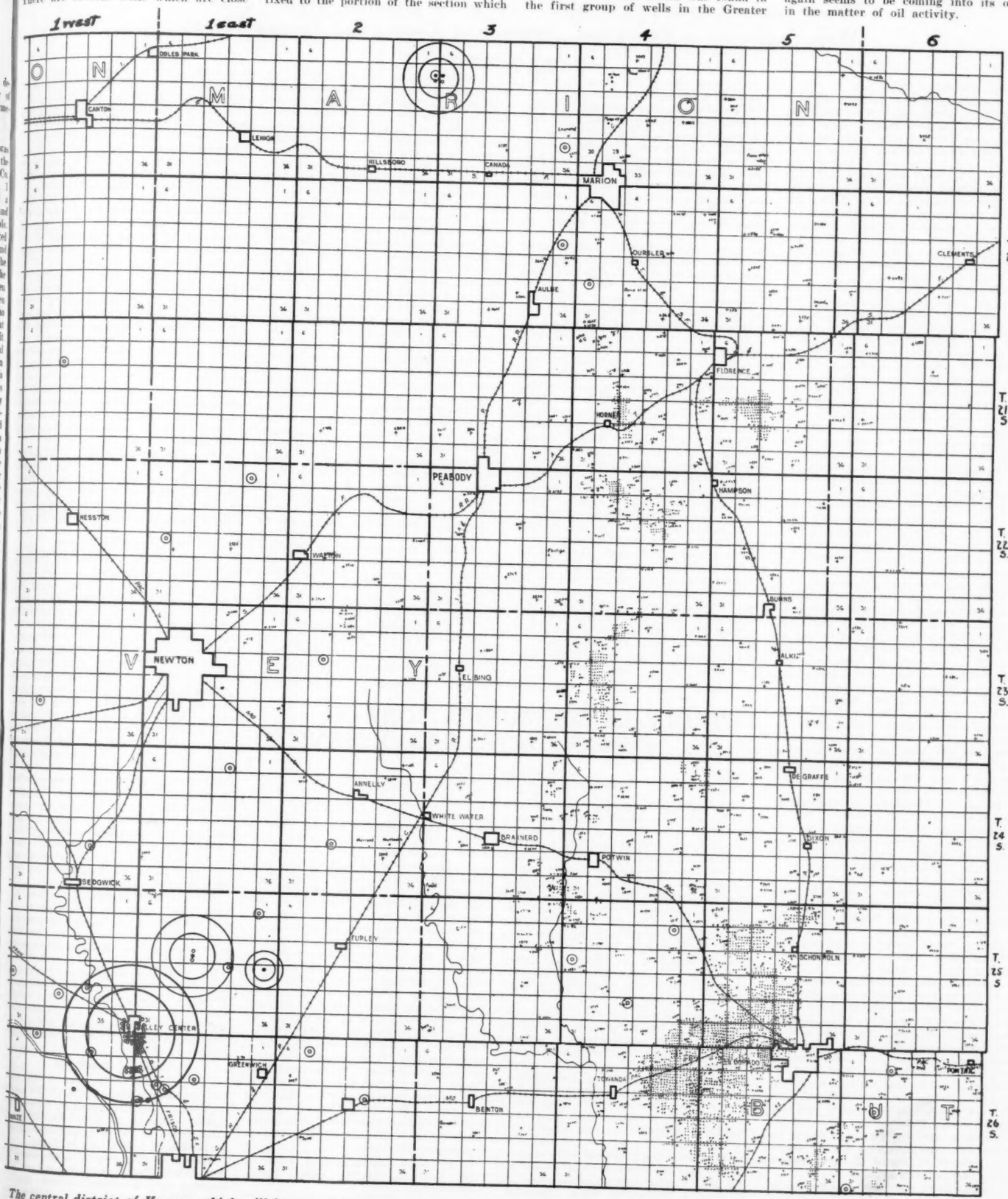
too low to be a producing well, and that it was doomed to be a dry hole. In this instance, the correlations played little difference, for the Smyser well is good for 750 bbls. daily. The region just north and east of the first group of wells is now the scene of exceptional interest. There are several wells which are close to the sand, and the next 10 days will give a much better idea of what may be expected from the pool. The wells in Section 6-26-1e are reported running very well with the discovery well, and it is possible that many good wells will prove the worth of the title which has been affixed to the portion of the section which is cut off by the railroad running through the southwest quarter. This spot has been termed "The Golden Triangle."

While the thickness of the pay streak in this region is not exceptional, it at least may be favorably compared with the section of sand which was found in the first group of wells in the Greater Seminole area. In the latter region, 8 or 10 feet of sand was the limit in many localities, and yet the leases have established excellent records for yield per acre.

After a lapse of many years, Kansas again seems to be coming into its own in the matter of oil activity.



The central district of Kansas, which will be one of the most active spots in the Mid-Continent area this year. The large double circle in the lower left hand corner of the map, shows the region around the Wright Pool. The smaller circle immediately above it shows the Marland Goodrich well, and to the right of the Goodrich well a circle marks the location of the Barnsdall Oil Co.'s No. 1 Samuels, which is producing in the chat. Near the top of the map, the large double circle marks the Empire Gas & Fuel Co.'s No. 1 Seiderman, in Marion County, which opens new country on account of the discovery of what is thought to be the Wright pay.

Oppose More Power for Commission

West Texas Exposition Adopts Resolution Against Granting Body Wide Authority in Proration. Interesting Geological Papers Heard

By James H. Dameron

SAN ANGELO, Tex., Jan. 28.—Geological discussions of unusual interest marked the fourth annual West Texas Oil Exposition held here January 24 and 25. More than 500 oil men registered and the meeting was declared the most successful held. A resolution adopted expresses disapproval of Section J, Article 6,029 of House Bill 338 and now before the House Committee of the Forty-first Texas Legislature. This bill gives the Railroad Commission of Texas authority to establish proration in any field at any time. A public hearing will be held in Austin January 30 at which time it will be fought to a finish.

The exposition was held in conjunction with the opening of San Angelo's new $25,000 flying field Friday afternoon. The field is owned by Carl Cromwell, Texon Oil & Land Co. official. On the eve of the opening Al Henley, nationally known pilot, and two passengers were killed when a ship owned by the Texon Oil & Land Co. crashed on the field when Henley attempted to land after flowing down wind at a low altitude and speed.

Levi Smith of the Big Lake Oil Co. was general chairman of the exposition and he presided at the business session. Following an address of welcome by Mayor W. D. Holcombe, Ford Turner, San Angelo, Pure Oil Co., related the duties and obligations of oil scouts.

Land of Extremes

Mr. Turner described West Texas as the land of extremes. West Texas scouts cover 60,000 square miles of territory, an area one-fourth as large as Texas, to supply operating companies with pipe line, drilling, geological, production, refining, tank building and special information each week. He reviewed the troubles of the scouts in the early days of West Texas to the present and said that only by such co-operative methods as are now used could the vast amount of information coming from that area be reported on accurately and speedily.

Earl Whitcomb, vice president of the West Texas Oil Scouts Association, reviewed briefly the history of scouting and told how the scout in his endeavor to get accurate information for his company must be a good will emissary, a land man and a detective.

Dr. F. B. Plummer, associate geologist of the Bureau of Economic Geology, University of Texas, addressed the meeting on "New Light on Buried Structures in West Texas." He declared a great wealth of petroleum is still to be discovered in West Texas but probably buried at great depths beyond the reach of present drilling methods. Doctor Plummer declared the torsion balance and other geophysical instruments may be used to find the deeply buried structures, probably 10,000 to 15,000 feet below the surface.

Great Igneous Structure Found

In observations made over a period of four years in the Permian Basin readings taken with the torsion balance across the West Texas oil area from east to west apparently picked up no folds, Doctor Plummer said. In a northwesterly direction, however, about half way between Monahans and Odessa, from Crane County through the eastern portion of Ward County, Winkler County and into Lea County, New Mexico, the balance showed a well-defined and deep-lying ridge of material which Doctor Plummer believes is formed of basic igneous rock, heavier than granite.

The folds of this area, he believes, lie against the sides of this big ridge and not on top of it. This deep ridge probably is the cause of the torsion balance not getting the results in West Texas that it made on the Gulf Coast, because the ridge affected the instrument and when a test was drilled it was low because the present producing structures in the basin are against the sides of the ridge instead of being on top. The instrument was not affected by the folds on the side, he believed, but was affected by the deep ridge, probably beyond the reach of the drill under present methods.

Doctor Plummer illustrated his talk with several slides showing cross sections of West Texas and maps of geophysical work in localized areas. He opened his address with a description of the torsion balance which he declared was a simple instrument to operate, though many persons would have the public believe it to be a delicate instrument difficult to use. In support of his statement he told of an experience in South Texas.

Truck Driver Finished Job

One member of the crew who had been reading the instrument became ill and was forced to take a long rest. A truck driver in the party who had been observing the work of the young man reading the instrument said he could do it. Without any previous experience he started to work and continued to read the instrument throughout the remainder of the summer with satisfactory results.

Dr. Charles N. Gould, State geologist of Oklahoma, reviewed the methods used by geologists in their work and produced figures to answer his question, "Does Science Help the Oil Man Get Results?"

As part of the answer he gave figures showing the rapid increase in the number of geologists. Recently he completed a survey lasting several months to determine what part geologists had in the discovery of 226 fields in southern Kansas, Oklahoma and north Texas. He said 24 per cent, or 56 fields, were discovered before the advent of the geologist in the oil industry. But since then approximately 70 per cent of the total discoveries, or 157 pools, were located or drilled upon the recommendation of geologists. Thirteen, or 6 per cent, were classified as "accidental finds." The survey showed that 96 per cent of the wells in the area covered had been drilled upon the recommendation of geologists.

The survey he made required more than three months of correspondence with authorities in the territories covered by the report. Reports were checked and rechecked to insure accuracy.

No New Methods Expected

In reviewing the methods used by the geologists Doctor Gould said he doubted if any new methods other than the two now in the embryonic stage would be developed and in 10 years from now probably not more than half a dozen of the present methods would be used.

Of the new methods research project No. 25 of the A.P.I., technically known as geothermal gradients, is being found interesting but thus far the results can not be interpreted. This method takes into consideration well temperatures. In some areas the highest temperatures have been found in the centers of anticlines and in others the reverse is true. The method is being experimented with in Texas, Oklahoma and California and tests must be made in idle wells. Tests in Oklahoma have been made in Seminole, Healdton and Tonkawa and the next will be made in such typical oil sand fields as Burbank and Glenn Pool.

The Ceramic tests of clays are in their infancy, Doctor Gould said. They are based on the fact that no two clays burn the same color at the same temperature. By burning the clays it is hoped to gain more data on the nature of the shales. At present these methods are being experimented with in Wyoming.

Court Opinion Explained

In discussing the "Effect of Supreme Court Opinion on the Relinquishment Act," Judge J. W. Hill explained several effects of the decision. According to him the soil owner may lease mineral rights on school lands but the royalty acquired by the lessee is subject to the one-sixteenth interest which must go to the State. The owner also retains a one-sixteenth interest.

According to Judge Hill the laws which relate to the payment of a bonus and rentals means that when a sum is paid to the landowner a similar sum must be paid to the State. In other words, if a lease is made requiring $1 bonus and 50 cents a year rental to the landowner a like amount must be paid to the State.

It is his opinion that the courts will have to decide whether, on contracts already executed, the landowner is liable to the State for one-half of the amount he has already collected, or whether the lessee will be required to pay to the State an amount equal to that paid the person with whom the original contract was made.

It also is his opinion that rentals to the landowner, which stop when production is gained on these leases, will have to be paid to the State, notwithstanding production.

Glenn Condon, director of public relations of the Skelly Oil Co., delivered a paper on "Aviation and the Oil Business," in which he described the industry as being foremost in helping to provide airports and the promotion of aviation.

Oil Man True Pioneer

"It was natural that the oil business should be the first great industry to get back of commercial aviation," said Mr. Condon. "In the first place the oil man possesses the true spirit of the pioneer; therefore, aviation appealed to him as a new industry in need of development. Secondly, he had a selfish interest. He recognized the airplane as a great potential market for petroleum products.

"Don't allow an unfortunate accident like the one at Cromwell Field last evening to influence you against the safety and reliability of properly conducted flying. Al Henley was a good friend of mine and one of the best pilots that ever lived. No one knew better than he that he was taking a big chance when he made a vertical bank at 100 feet with a 50-mile wind blowing and practically no flying speed. Those chances are not taken on passenger lines. Airplanes themselves with competent, careful pilots are safe. The only thing that can make flying safer is more and better airports."

The afternoon session of the first day was turned over to entertainment. A golf tournament was held at the San Angelo Country Club and on another part of the club grounds a trapshooting event was held.

That night a program was given in one of the theaters featuring boxing and wrestling. Friday afternoon was turned over to the opening of the airport and that night the entertainment ended with two dances, one at the Country Club and another at a hotel.

Text of Resolution

The following is the text of the resolution unanimously adopted at the meeting Friday morning opposing passage of a bill designed to give the Railroad Commission of Texas more power in the regulation of production in Texas:

"Be it resolved that it is the sense of the West Texas Oil Exposition assembled in convention at San Angelo, Tex., this twenty-fifth day of January, 1929, that they look with disfavor and express their thorough disapproval of Section J of Article 6.029 of House Hill

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PETROLEUM COMMUNICATIONS CO. CONSOLIDATES RADIO SERVICES

By Charles E. Kern

Washington Bureau, The Oil and Gas Journal

WASHINGTON, D. C., Jan. 26.—Yielding to the viewpoint of some members of the Federal Radio Commission oil companies that have applications pending before that commission for radio station licenses and construction permits have joined in the formation of a public service company and Fayette B. Dow and Horace L. Lohnes, attorneys for the individual applications, have requested the commission to consider the evidence previously submitted to it as having been taken on behalf of the "Petroleum Communications Co.," the public utility organization that will represent the individual applicants.

This action was for the purpose of unification of the service and making it available to the public generally, giving a single public service company to take over and operate all of the stations of the applicant both existing and applied for. The companies joining in this motion to consolidate are the Texas Pipe Line Co., the Marland Pipe Line Co., Phillips Petroleum Co., and Skelly Oil Co.

The Petroleums Communications Co. is incorporated under the laws of Delaware and has its office and principal place of business at Bartlesville, Okla. None of the capital stock is owned or may be voted by aliens or their representatives, or by a foreign government, or its representatives. It is not contemplated to sell stocks to operate the stations. The corporation will own and control all stations and will be adequately financed.

To Consolidate Service

The motion to consolidate declares that careful consideration has been given to the engineering requirements of the proposed operations of the Petroleum Communications Co. to the end that all channels now being used or applied for by these applicants will be most efficiently used and adequate communications service will be furnished between the points involved. Some of the stations have been operating for a number of years and a highly trained and efficient personnel has been built up. Equipment and apparatus particularly designed to carry on efficient communication is now in use by the individual companies. All of this will be taken over by the new company. With the personnel and equipment problem thus solved, operations can be started immediately. The Federal Radio Commission is requested to assign to the exclusive use of the Petroleum Communications Co. the following frequencies or an equal number possessing substantially equivalent characteristics:

In the band extending from 1,500 to 6,000 kilocycles: 5,735, 5,780, 5,810, 5,840, 5,870.

In the band below 550 kilocycles: 157, 169, 182, and 187.5.

It is requested that the 11 existing stations for which applications for op-

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Crude Values Cut $222,000 Per Day

Price Reductions Started January 24 Affected Many Fields, Some of Them Severely. Oklahoma High-Grade Pools Hit Hardest

By James McIntyre

A general downward revision of the crude oil posted price schedule was inaugurated by the Carter Oil Co. in Oklahoma and Kansas on January 24. Closely following the announcement, the Humble Oil & Refining Co. lowered its Texas posted prices in North Texas, Central Texas, East Central Texas and the Texas Panhandle. Then all the oil purchasers followed with cuts, which for the most part were identical with the Carter and Humble prices. The Magnolia Petroleum Co. adopted the Carter-Humble prices from 32 gravity upward but made its own price on crudes of the lower grades.

On January 25 the Ohio Oil Co. made cuts of from 5 to 15 cents in Rocky Mountain crudes and the Salt Creek schedule was made to conform with the new Mid-Continent schedule between 29 degrees and 37 degrees and over. The Ohio Oil Co. on the same day cut Lima, Indiana, Illinois, Princeton, Plymouth and western Kentucky crudes 10 cents and Wooster 15 cents. The Seep Purchasing Agency cut Corning, Ohio, crude 10 cents.

On January 26 eastern Canadian crudes were reduced 10 cents and the Magnolia Petroleum Co. led in a reduction in North Louisiana and Arkansas. Grade B light crude on the Gulf Coast was given a 10-cent cut.

The details of the crude reduction will be found on pages 244 and 245 on which the crude market schedules are carried.

The weighted average gravity of Oklahoma crude oil at this time is 37.69 degrees. The average reduction in price by reason of the change in the schedule was 19.39 cents per barrel. In Kansas, where the average gravity of the crude is an infinitesimal fraction below 37 gravity the average cut was 17.96 cents per barrel.

Oklahoma Hit Hard

The effect on Oklahoma producers was to lower the value of their production $140,814.02 per day, based on the production of 726,298 bbls. as of January 25, the day on which the cut was made general. Kansas producers suffered a total reduction in value of their crude of $17,619.34. The Seminole and St. Louis producers were the hardest hit of Oklahoma operators. Seminole's production of 285,225 bbls. on that day was cut $61,662.54 in value and St. Louis with 129,036 bbls. was lowered in value $28,569.68.

The change in the price schedule in Oklahoma and Kansas affected the high grade oils to a greater extent than the lower gravity crudes. Beginning at 32 gravity which was reduced 8 cents per barrel the reduction increased 2 cents with every degree up to 44 and above which was cut 32 cents per barrel and oil of 25 gravity was cut only 1 cent per barrel with an added 1-cent cut on every degree up to 32 gravity. The Magnolia Petroleum Co. on the other hand, cut 25 gravity 7 cents, 26 gravity 9 cents, 27 gravity 5 cents, 30 gravity 10 cents, and 31 gravity 5 cents and adopted the Carter price on crudes above 31.9 degrees. The Empire Petroleum Co., adopted the Magnolia schedule in Carter County.

The cut in the high grade Texas fields affected about 160,000 bbls. of production in the North, Central and East Central areas and as the weighted average gravity of the crude in that large area is 37 to 37.9 degrees the crude reduction meant a slicing of 18 cents per barrel from the old average price and this cut meant a reduction of $28,880 per day in the gross income of producers and royalty owners in the territory affected.

In the Panhandle Field, where there is 61,000 bbls. a day production the weighted average gravity is 38 degrees and the price cut averaged 12.7 cents per barrel. Gray County crude runs high in gravity. The bulk of it is around 40 degrees but it runs as high as 44 gravity. The crude in Hutchinson, Carson,

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KANSAS FIELDS

Estimated Decrease in Value of Crude Production, Price Schedule in Effect January 25, 1929

Name of Field—	Gravity of oil	Prod. Jan. 25 bbls.	Reduction in value of daily prodn.
Florence-Urshell	33	400	$ 40.00
Covert-Sellers	32	425	34.00
Peabody	34	1,200	144.00
Lost Springs	37	1,325	490.25
Elbing	34	1,985	238.20
North Augusta	32	865	86.50
South Augusta	32	1,135	113.50
El Dorado	35	6,700	938.00
Fox Bush	39	885	194.70
Towanda	33	2,110	211.00
Sluss	38	260	52.00
Weaver Leon	38	6,010	1,202.00
Snock	38	165	33.00
Nuttle-Koogler	33	1,480	148.00
Robinson	35	496	69.44
Wilson-Dunkle	35	1,470	205.80
Potwin	42	365	102.20
Eastern Butler	32	800	48.00
Douglas	32	120	7.20
Salyards	38	1,260	252.00
Pixley Teeter	42	5,335	1,493.80
Virgil	39	6,360	1,399.20
Seely-Westcott	41	5,540	1,440.40
Thrall-Burkett	41	1,520	395.20
Paulhamus-Agard	40	895	214.80
Madison	40	964	231.36
Greenwood Miscellaneous	38	1,015	203.00
Lyon County	40	800	192.00
Harvey	24	26	.26
Oxford-Churchill	37 to 38	14,000	2,660.00
Graham	38	395	79.00
Rainbow	41	950	247.00
Slick	40	550	132.00
Winfield-New Salem	39	1,810	398.20
Eastman	39	430	94.60
Rock	39	140	30.80
Udall-Clark	39	135	29.70
Cowley Miscellaneous	40	600	144.00
Chautauqua	32	2,300	184.00
Elk County, west half	34	2,225	267.00
Russell	41	3,400	584.00
Rice	37	860	154.80
Young-Keighley	40	830	199.20
Benton	41	18	4.68
Sedgwick County	42	7,200	2,016.00
Miscellaneous	32	1,500	120.00
Miscellaneous	28	8,850	354.00
Total Kansas		98,104	$ 17,619.34

Average gravity, Kansas, 37 degrees.
Average reduction in price, 17.96 cents.

OKLAHOMA FIELDS

Estimated Decrease in Value of Crude Production, Price Schedule in Effect January 25, 1929

Name of Field—	Gravity of oil	Prod. Jan. 25 bbls.	Reduction in value of daily prodn.
Ada	35	1,116	$ 156.24
Allen	30 to 34	27,000	2,700.00
Barnes	39	242	53.24
Billings	43	144	43.20
Blackwell	39	2,925	643.50
Braman—North	42	2,260	632.80
Braman—South	43	1,300	390.00
Bristow-Slick	30 to 41	19,480	2,349.17
Brock	34 to 39	680	109.58
Burbank	37 to 39	23,215	4,373.00
Cement	34 to 36	1,550	214.50
Cleveland	32 to 40	4,335	768.10
Comanche	33 to 36	1,700	236.90
Cromwell	36 to 40	7,977	1,658.72
Cushing	34 to 40	20,965	4,324.80
Davenport	41	1,650	429.00
Duncan	29 to 40	4,485	643.15
Fox	27 to 32	1,500	214.82
Garber	42 to 47	6,720	2,129.60
Graham	32 to 37	4,625	553.90
Healdton	28 to 33	13,155	893.05
Hewitt	32 to 35	8,770	899.40
Hubbard	38	2,210	442.00
Jennings	33 and 39	1,635	303.90
Kilgore	30	175	10.50
Knox	37 and 40	5,090	940.50
Loco	24 to 36	1,211	48.77
Madill	27	260	12.11
Marshall-Lovell	43	14,500	4,350.00
Masham	40	170	40.80
Mehan	40	415	99.60
Mervine	38	325	65.00
Milroy	29	435	21.75
Nowata	32	5,340	427.20
Okemah	36 to38	72	12.86
Oklahoma City	40	5,700	1,368.00
Okmulgee County	36	14,250	2,280.00
Osage	33 to 51	26,235	3,370.00
Sholom Alechem	32	14,500	1,160.00
Otstott	43	970	291.00
Papoose	36 to 40	3,540	731.30
Perry	43	35	10.50
Ponca City	38	830	166.00
Robberson	19 to 26	1,993	20.00
Rogers County	32	2,160	172.80
Ripley	40	1,616	387.40
St. Louis	38	129,036	28,569.68
Sand Springs	38	420	84.00
Sayre	35	30	4.20
Seay	34 and 37	2,270	356.40
Shamrock	40	1,035	248.40
Seminole	38 to 41	285,225	61,662.54
Seminole wildcats	38	2,200	440.00
Stroud	41	1,285	334.10
Thomas	42 and 43	960	268.80
Tonkawa deep	43	7,810	3,231.00
Two South-Six West	28	60	.60
Walters	27 to 32	1,130	178.20
Washington County	32	5,540	443.20
Watchorn	42	720	201.60
Weleetka	39	645	141.90
Wetumka	38	47	9.40
Wewoka	34 to 39	5,307	1,097.38
Yale-Meramec-Ingalls	33 to 42	6,002	1,502.96
Yeager	37 and 38	390	66.00
Miscellaneous	32	6,050	484.00
Miscellaneous	35	10,675	1,281.00
Total Oklahoma		726,298	$140,814.02

Average gravity, Oklahoma, 37.69 degrees.
Average reduction in Oklahoma, 19.39 cents per barrel.

Production in 1928 897,995,265 Bbls.

Crude Oil Output in United States Far Below Potential With Proration and Curtailment of Drilling in Big Fields

By James McIntyre

Crude oil production in the United States in 1928, 897,995,265 bbls., did not represent anything like the ability of America's many fields to produce oil. It meant simply that a given quantity of oil was permitted to reach the surface. The potential production of the wells already productive was greatly in excess of the quantity produced, which quantity was 5,855,422 bbls. below the production of 1927, the record producing year. Had West Texas, California and Oklahoma produced to their full capacity it would have meant an unmarketable and unmanageable flood of oil that would have been criminal waste. The most conservative drilling and producing methods ever put into effect in this country kept production down, but not enough to make it possible for the industry to reduce its immense stocks of crude which it has been piling up almost continuously since the war demand for crude and its products.

Texas the Leading Producer

Texas was the leading producer last year with 255,354,357 bbls. to its credit, an increase over its 1927 production of 35,323,845 bbls. Winkler County, which in 1927 produced only 3,109,523 bbls., or an average of less than 9,000 bbls. per day, last year produced 58,898,863 bbls., and Pecos County, which in 1927 produced 5,250,173 bbls., last year showed a production of 22,673,875 bbls., and both fields were held down by proration of runs and a greatly curtailed drilling program. This pair of fields had most to do with the increased production of the Lone Star State. The Upton-Crane, Borger, Reagan and Spindletop Fields registered an appreciable decline in output last year. Upton-Crane fell off from 29,583,131 bbls. to 25,261,260 bbls.; Reagan County from 8,668,381 bbls. to 7,039,043 bbls., Spindletop from 21,264,935 bbls. to 14,332,357 bbls. The Borger Field in Hutchinson County dropped from 32,240,493 bbls. to 13,839,632 bbls. The once famous Powell, Mexia and Luling Pools all showed a natural decline. Gray County, in the Panhandle, which produced 3,966,412 bbls. in 1927, made a record of 7,795,865 bbls. last year.

Oklahoma's Decline

Oklahoma was second as a producing state with a record of 247,500,851 bbls., a decline of 28,521,173 bbls. from its 1927 production. While the St. Louis-Pierson-Maud Field in the Greater Seminole area produced 21,234,913 bbls. last year as against a record of 1,416,020 bbls. in 1927, and Little River increased its production from 5,144,014 bbls. in 1927 to 24,447,158 bbls. last year, the Greater Seminole area, which may be taken to include Seminole City, Searight, Mission, Maud, St. Louis, Pearson, Bowlegs, Little River and Earlsboro, dropped from 137,357,118 bbls. in 1927 to 126,319,096 bbls., while the Seminole Field itself, which does not include St. Louis and Pearson, dropped from 135,951,098 bbls. to 105,084,093 bbls., a decline of 30,867,005 bbls. Seminole City, the oldest of the Seminole pools, which was at its best in 1927, dropped from 47,039,644 bbls. to last year's figure of 18,237,004 bbls. In the three years of its existence Seminole City produced 76,115,471 bbls. Bowlegs, just south of Seminole City, fell off from 36,649,733 bbls. to 23,800,896 bbls. Earlsboro was a more consistent producer than Seminole City or Bowlegs. In 1927 its record was 36,885,196 bbls., while last year it was 33,321,824 bbls. Its total production up to the close of 1928 was 70,595,480 bbls. Altogether the five big pools have produced up to the close of 1928 a total of 252,203,504 bbls., putting Seminole in the class with the greatest producing fields in the United States. The record of the Cushing Field from 1912 to 1928, both inclusive was 290,415,687 bbls. Seminole will displace Cushing as the greatest producing area in Oklahoma before 1929 is at an end.

California's Increased Output

California produced 231,982,597 bbls. in 1928, an increase of 1,231,134 bbls. over its 1927 record and 31,746,298 bbls. below its big year in 1923 when it was responsible for 263,728,895 bbls. Long Beach scored a notable come-back last year as the result of deeper drilling into oil sands that proved a vast storehouse of oil. Long Beach made a record of 62,467,103 bbls. which exceeded that of any other single pool in the United States in the same year and surpassing its 1927 record by 27,925,436 bbls. Santa Fe Springs began the development of deeper pays last year, but too late to bring the field back to its records of some other years. Santa Fe Springs produced 16,093,931 bbls. as against 15,153,578 bbls., but at the close of 1928 its production had risen to 120,000 bbls. a day and was rapidly on the ascendancy. It is a question whether or not it will equal its 1923 record of 79,781,275 bbls., an average of over 218,000 bbls. a day through the year, a record equalled by no other single pool in America in the same length of time. Santa Fe Springs has produced 185,085,847 bbls. in eight years; Long Beach has produced 322,682,655 bbls. in seven years, something that no Oklahoma pool has done in all the years the State has produced oil. California's total production up to the close of the year was 3,016,331,064 bbls. and from the sixties until 1901 it never averaged 25,000 bbls. a day in a single year, and did not average 100,000 bbls. a day per year until 1907. It is expected to greatly surpass its 1928 production this year with the development of new pools and of deeper horizons in old fields.

Kansas Production Dropped

Kansas production declined last year. The State made a record of 41,943,577 bbls. in 1927 but could do no better than 38,137,934 bbls. At the opening of the new year pools in Sedgwick County gave promise of producing largely and a wildcat campaign that will include northern Sedgwick, and Harvey and Marion Counties is expected to develop enough new production to bring Kansas back to its 1926 and 1927 standing as a producer of oil. The Churchill-Oxford area in Sumner County had its best year in 1928 with a production of 7,787,738 bbls. as against 6,708,275 bbls. in 1927 and was the leading producing field in the State.

Wyoming developed more production last year than in 1927 by the development of new pools and in extensions of old pools. The State's record of 21,403,460 bbls. compares favorably with the 20,983,675 bbls. of the previous year.

Notwithstanding the discovery and development of productive salt domes in south Louisiana, the production of that State fell from 24,330,954 bbls. in 1927 to 22,862,564 bbls. in 1928. The north Louisiana area had a dull year so far as oil development is concerned and the southern part of the State saved a complete let down in that territory.

Champagnolle, of which so much was expected at the opening of 1928, failed to produce sufficiently to maintain Arkansas' production and the output of crude dropped from 40,411,375 bbls. in 1927 to 38,150,878 bbls. last year. The big year in Arkansas was in 1925 when Smackover was responsible for bringing the production up to 78,407,138 bbls. There is nothing in sight to indicate that the State will be saved from a continued downward trend in crude output.

Eastern States Show Increase

Increases in production last year are to be seen in the figures for New York, Pennsylvania, Michigan and Indiana notwithstanding they are all old producing fields. The increase of production in the Allegany-Bradford district which lies in northwestern Pennsylvania and southwestern New York is remarkable. The little producing area in southwestern New York has more than doubled its output since 1923 by repressuring wells in old territory where the gas had given out, and the same means has been responsible for a very large relative increase in the McKean County, Pennsylvania, Field. Bradford and Allegany are credited with a production of 8,418,000 bbls. last year and 5,812,623 bbls. in 1925.

Outlook for 1929

The outlook for 1929 brings California, Texas, Oklahoma and Kansas into prominence. Each of those states is expected to produce more oil than last year unless a very strict policy of curtailment is put into effect. The potentiality of West Texas is well known. That area alone can swamp the market with oil, but there is no reason for doubting that West Texas operators will continue their same policy of last year. California at the end of January, 1929, does not appear as dangerous a factor as it did at the close of 1928, but that it will exceed last year's crude output by millions of barrels is still expected. Oklahoma and Kansas are not looked upon with as much fear as the two other states named but the possibilities of the Wilcox sand in Oklahoma have not yet been exhausted while another Towanda is not beyond possibility in Kansas.

Effect of Lower Prices

A reduction in the posted prices of many grades of crude in the Mid-Continent, Rocky Mountain and old Central West Fields late in January is expected to slow up wildcatting as it is, in a sense, a threat of worse things to come if overproduction continues. A well known petroleum economist estimates the weighted average price of crude oil last year at $1.30 per barrel. If this is correct the value of last year's production was $1,167,393,844. The average price in 1926 was $1.88 per barrel and the 775,561,275 bbls. produced that year according to The Oil and Gas Journal's figures, was valued at $1,458,055,197. Therefore while American oil companies produced 122,433,990 bbls. more in 1928 than in 1926, they received $290,661,353 less for their product. Even the smaller production of 1925, 759,846,578 bbls., according to The Oil and Gas Journal's figures at the average price of $1.68 per barrel brought a revenue of $1,276,542,251 to producers or $109,148,407 more than the estimated revenue in 1928 from 138,148,167 bbls. less of crude oil.

PRODUCTION IN THE UNITED STATES: 1923 TO 1928, INCLUSIVE

	1923 (bbls.)	1924 (bbls.)	1925 (bbls.)	1926 (bbls.)	1927 (bbls.)	1928 (bbls.)	No. of active oil wells Dec. 31, 1928	Daily av. prod. per well
California	263,728,895	230,063,117	230,147,342	224,117,013	230,751,463	231,982,597	10,711	59.18
Oklahoma	165,013,685	176,206,397	173,270,063	177,651,198	276,022,024	247,500,851	61,555	10.87
Texas	131,997,038	135,361,378	144,783,451	172,545,278	220,030,512	255,354,357	26,971	25.86
Arkansas	38,647,863	48,167,912	78,407,138	58,729,606	40,411,375	32,137,934	4,440	19.78
Kansas	29,812,123	29,671,551	38,151,622	41,346,511	41,943,577	38,150,878	20,015	5.21
Wyoming	42,386,704	39,251,070	29,229,303	25,465,553	20,983,675	21,403,460	3,249	16.60
Louisiana	24,708,993	20,638,051	21,537,564	24,283,144	24,330,954	22,862,564	3,960	15.77
Illinois	8,720,125	8,041,000	7,862,000	7,770,500	6,873,000	6,475,000	16,215	1.09
Pennsylvania	7,276,850	7,529,100	7,831,200	8,971,200	9,642,000	9,914,000	78,247	.34
Ohio	7,080,125	6,797,000	7,175,000	7,307,500	7,542,500	7,105,000	39,900	.49
Kentucky	8,066,000	7,396,900	6,770,000	6,297,200	6,590,000	7,350,000	20,150	1.00
West Virginia	6,400,458	5,924,000	5,780,000	5,962,400	6,033,000	5,746,000	17,596	.89
Montana	2,677,717	2,785,724	4,122,653	7,744,605	5,171,883	3,998,849	1,154	9.48
New York	1,250,100	1,482,000	1,660,000	1,934,209	2,237,000	2,579,000	14,680	.47
Colorado	62,500	391,922	1,171,625	2,776,442	2,722,670	2,744,184	175	42.84
New Mexico	.....	81,800	1,096,617	1,695,645	1,214,254	973,891	257	13.54
Indiana	1,040,500	936,000	828,000	785,200	852,500	1,054,000	2,636	1.10
Tennessee	7,500	6,300	23,000	44,200	62,200	50,000	.....	.....
Michigan	.....	.....	.....	103,000	436,100	613,000	427	3.93
Miscellaneous	.....	.....	.....	30,780	.....	.....	.....	.....
Total	738,877,176	720,731,222	759,846,578	775,561,275	903,850,687	897,995,265	322,338	7.61

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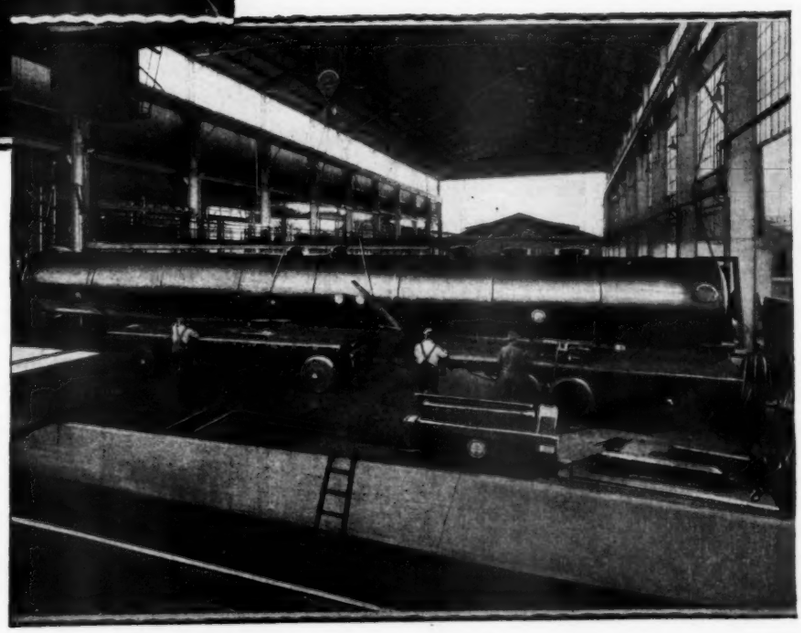

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The OIL and GAS JOURNAL

PRODUCING REFINING ENGINEERING MARKETING

Published Weekly by
THE PETROLEUM PUBLISHING COMPANY
114-116 West Second Street
TULSA, OKLA.

Established as an International Publication in 1910 by Patrick C. Boyle

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FUEL OIL AND SCRAP IRON

There is no apparent connection between fuel oil and scrap iron but a recent analysis of the steel industry in the past 15 years must be of interest to the oil industry for the parallel it offers.

The steel industry is discovering, like the oil industry, that, more and more, one of its products is competing with its pig iron as fuel oil is competing with crude as a base for gasoline.

The records for 1913 show that in 21 countries the production of pig iron exceeded that of steel by 4 per cent. But by 1924 steel production was 15 per cent larger than that of pig iron and in 1928 steel output was 24.8 per cent greater than the output of pig iron.

This change was the more notable in the most efficient country, the United States, where in 1913 steel production exceeded pig iron production by 1 per cent, which had grown to 20.5 per cent in 1924 and in 1928 36 per cent more steel than pig iron was made.

In other words, while steel production had grown 43 per cent since 1913 pig iron production had increased only 11 per cent. Steel output in the United States was 65 per cent larger last year than in 1913, while pig iron output was only 2.25 per cent larger than the prewar year.

The explanation, of course, is the increasing use of scrap iron in steel making.

Converting waste into profit is the keynote of modern industrialism.

The oil industry has been matching that record in conservation and efficiency by cracking gasoline out of fuel oil. The figures are as impressive as those of the steel industry in conservation of scrap.

The steel industry has been able to make more steel with comparatively less pig iron produced and the oil industry has been able to make more gasoline with comparatively less crude.

Thanks to the use of fuel oil as a base for gasoline manufacture and the extraction of gasoline from casinghead gas the oil industry is producing more motor fuel from proportionately less crude oil just as the steel industry is making more steel from proportionately less pig iron.

In the month of November, the last for which figures are available, the percentage of gasoline recovery reached 43 per cent. Of this 24.1 per cent was from crude oil; 14.7 per cent from fuel oil and gas oil and 4.2 per cent was natural gasoline.

In other words, almost half our gasoline production in November came from fuel oil and natural gasoline instead of crude oil, just as scrap has displaced pig iron in the steel industry.

In November, 77,100,000 barrels of crude oil were run to stills. If all the gasoline produced in that month had been made from crude oil it would have required 137,834,000 barrels of crude or 60,734,000 barrels more than were actually used. This rate would have called for 720,000,000 more barrels of crude per year, which would represent the saving effected by the use of fuel oil and natural gasoline as sources of gasoline manufacture at the November rate.

How greatly the utilization of scrap has contributed to the prosperity of the steel industry can be imagined. What the conversion of fuel oil into gasoline has meant to the oil industry is as plain.

The recovery of gasoline per barrel of crude has been mounting steadily. It was 39.9 in 1927 and 41.5 last year (43 percent in November) with every prospect that it will reach 42.5 or even 43 per cent this year. Theoretically it might be 75 per cent which it is expected ultimately to reach.

The increase in recovery percentage last year required 30,000,000 barrels less of crude than in 1927. This gain in manufacturing efficiency is offsetting the normal increase in demand for gasoline to that extent. It has been a continuing process for several years and seems certain to go on, just as the steel industry has been getting along with proportionately less pig iron through the use of scrap.

Scrap iron as a competitor of pig iron as a supply for finished products has increased the prosperity of the steel industry. Fuel oil as a competitor of crude must be viewed in the same light by the oil industry. The more valuable finished products made from the same quantity of raw material the better, of course, for any industry.

That is the whole trend of present-day industrialism, reduced costs, greater recovery of finished products in volume or value.

The steel industry has thrived upon that process and the oil industry should do likewise.

But the steel industry has not gone on making the same proportionate volume of pig iron as consumption of steel products grew regardless of whether it was needed or not. If it needed less pig iron it produced less.

That is the lesson the oil industry should learn from the experience of the steel industry. If steel men had kept on producing pig iron in the same proportions to finished product as before they would have piled up an overproduction of pig iron that would have reacted on the whole price structure.

Pig iron producers have been careful to keep their output in line with prospective demand. There has been no competitive rush for volume of production regardless of demand or profit. The steel industry has kept its production in line with anticipated requirements and has thus escaped the recurrent periods of depression which have beset the oil industry through overproduction.

Oil men have been accused of being incurable optimists, happy-go-lucky wayfarers always looking for the pot of gold at the rainbow's end. No one has ever accused steel masters of light-mindedness. They have no expectation of striking a gusher. There is no flush production in the iron business. Profits, not volume, are the constant aim.

The oil industry has just suffered another penalty for disregard of the fundamental principles of successful business by overproduction. When every effort should be being made to get the utmost value out of every barrel of oil values are being shot to pieces.

It is just as if the American iron industry was flooding the world with pig iron. The inevitable result would be a cheapening of steel products far below their real worth to the industry making them or to the consumers who would be adversely affected by the depression of the steel business and its effect on prosperity generally.

Permanent prosperity in any industry or country depends upon profitable interchange of products. Sales below cost mean starved industries and businesses and starvation wages, a vicious circle always going lower. If crude oil and its products were being sold today for what they are worth to the industry and to the world it would mean enough additional business to all other industries and businesses to send our national prosperity to a new high tide.

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N. C. M'GOWEN SELECTED TO HEAD NEW MONROE-ST. LOUIS GAS LINE

NEW YORK, Jan. 29.—The Mississippi Valley Fuel Corp., a syndicate headed by Standard Oil Co. (New Jersey), has been organized to establish a gas pipe line from the Monroe Field in Louisiana to St. Louis. The project will involve the expenditure of between $25,000,000 and $30,000,000. In addition to the Standard Oil Co. (New Jersey) the syndicate includes United Gas Co., Electric Power & Light Co., Columbian Carbon Co., the United Carbon Co. and the Palmer Corp. United Gas Co., which has the second largest interest in the syndicate, is a natural gas public utility company operating four producing and distributing systems in Texas and Louisiana.

The combined companies control 70 per cent of the natural gas reserve of the Louisiana and Texas producing districts, it is stated, and will furnish natural gas in the St. Louis area to a potential market of 150,000,000 feet daily. At the beginning of operations, the line will furnish 100,000,000 feet daily.

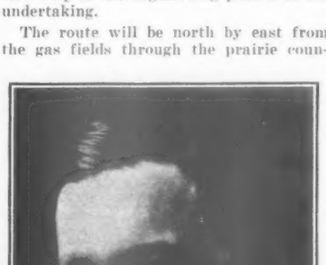
M'GOWEN HEADS COMPANY

SHREVEPORT, La., Jan. 29.—Announcement in New York of the organization of the Mississippi Valley Fuel Corp. to pipe gas from the Richland and Monroe Fields of Northeast Louisiana to St. Louis brings to a definite conclusion two years of negotiations between various interests, some of which passed out of the picture during the process. Details of organization of the corporation, of which N. C. McGowen, vice president of the Palmer Corp. and general manager in this territory, is to be the chief executive, will be made known later.

The line, contracts for construction of which will be awarded during the next three or four weeks, will be approximately 460 miles of 22-inch coupled, with five compressor stations the first of which will be in the field and the remaining four spaced at intervals of approximately 100 miles. It will have an initial capacity of around 100,000,000 feet per day and when business warrants, will be looped. Construction is estimated to cost approximately $26,000,000, of which $21,000,000 will be spent in initial construction with $5,000,000 reserved for installation of additional compressor stations, loop sections, etc., when needed. It is designed as strictly an industrial gas proposition to service large industries in St. Louis, East St. Louis, Alton and Granite City, who have contracted for practically its entire initial capacity.

Only one detail of preliminary activities remains to be accomplished: securing rights of way or franchises for the line through streets, and the last of these has been negotiated, requiring only formal city council procedure. Right of way has been surveyed for many months, and some of it bought, aerial reconnaissance in the fall of 1926 having been the first step in the engineering phases of the undertaking.

The route will be north by east from the gas fields through the prairie country of eastern Arkansas with the Arkansas, White and St. Francis as the major river crossings. The former presents an engineering problem outranking anything builders of pipe lines from the northeast Louisiana gas fields have encountered on existing lines due to the characteristics of the Arkansas and the White and St. Francis with their flood basins also present difficulties peculiar to themselves. H. C. Cooper of the Standard Oil Co. of New Jersey is the chief engineer on the job and will also be one of the executives of the syndicate owning the line.



N. C. McGowen

High Spots in Field News

KANSAS

More important wildcat showings added in Wright Pool.

SOUTHWEST TEXAS

Refugio tests look like oil wells. Greater activity in leasing.

NORTH LOUISIANA-ARKANSAS

Letting down of bars on carbon black making opens field to market. Wildcat tests planned in two states.

CALIFORNIA

Santa Fe Springs may soon hit first peak. Deeper zone threatens another later. Getty's test may tell the story.

MICHIGAN

Production of Chippewa Co. well, Isabella County, has increased to more than 850 bbls., a new record for Mt. Pleasant Field.

ROCKY MOUNTAIN AREA

Lea County, New Mexico, wildcats report shows. New rental regulations withdrawn. Southern Colorado has wildcat showing.

NORTH TEXAS AND PANHANDLE

New pool opened in Coleman County. Showing in outpost well in Wilbarger. Shackelford County territory recently opened has second well better than first.

GULF COAST

Vacuum Co. well at Lockport, La., flows 1,200 bbls. Gulf Co. well at Big Creek flows 1,500 bbls. an old well deepened. Pierce Junction has first production on extreme southwest flank, 2,500 feet extension.

OKLAHOMA

Several wells in Mission area found Simpson sand running very low. Water in top of Wilcox sand in some wells of Mission Pool and a decline in output and appearance of water in Wilcox sand discovery well of Allen Field were important features of the week.

WEST TEXAS

Kingwood Co. well in Irion County, deepest drilling test in West Texas, had show of oil at 5,480 feet. Atlantic Oil Producing Co. well, 8 miles west of Yates Pool, found show at 1,653 feet.

Sharp increase in runs to storage. Discovery of production halfway between Tiner and Noodle Creek Pools promises activity in Jones County.

Late News from the Field

OKLAHOMA

In the Mission area of Greater Seminole there are several wells which reached the Simpson sand and found that formation running very low. One of the lowest is the Gypsy Oil Co.'s No. 2 Barkus, SW cor. SE SW Section 6-8-6, which topped the Simpson at 4,693 feet. It was drilled to 4,723 feet, and has 1,800 feet of oil. No. 3 Barkus, SE cor. SW SW Section 6-8-6, had the Simpson 4,365-75 feet with nothing showing. No. 4 Barkus, SW cor. SW Section 6-8-6, has 3,500 feet of oil in the hole from Simpson 4,555-68 feet. No. 5 Barkus has 3,500 feet of oil in the Simpson 4,620-24 feet. These wells are all to the west of No. 1 Barkus, which was the first well in this region to be drilled into the Wilcox sand. They are all within one-half mile of the first well.

In the St. Louis region the Magnolia Petroleum Co.'s No. 1 Lattimer, SE cor. SW NW Section 17-7-4, swabbed 252 bbls. from the Simpson sand found 4,365-4,400 feet. The Sinclair Oil & Gas Co.'s No. 4 Blandin, NW cor. SW SW Section 24-7-4, swabbed 250 bbls. from Wilcox 4,238-62 feet. It was drilled deeper to 4,266 feet and has 1,500 feet of water in the hole.

The Shell Petroleum Corp.'s No. 1 Livingston, SW cor. SE Section 33-7-5, a wildcat well southeast of the St. Louis Pool, found the Wilcox 4,565-73 feet and swabbed 35 bbls. in six hours. This well has some water coming from the Simpson sand.

KANSAS

The Empire Gas & Fuel Co.'s No. 1 Seiderman, SE cor. NE Section 12-19-3e, in Marion County, was swabbing 20 bbls. hourly from the sand found 2,823-49 feet, and it is showing a little water picked up in the last 2 feet. It will be plugged back to shut off the water.

WEST TEXAS

FORT WORTH, Tex., Jan. 29.—Kingwood Oil Co.'s No. 1 Suggs, Section 19, Block 1, Irion County, the deepest drilling test in West Texas, encountered a show of oil at 5,480-83 feet and is drilling at 5,512 feet. Atlantic Oil Producing Co.'s No. 1 Sellman, Section 19, Block Z, Pecos County, and 8 miles west of the Yates Pool, found a show of oil at 1,653 feet and is drilling anhydrite at 1,672 feet.

MICHIGAN

MUSKEGON, Mich., Jan. 29.—Daily production of the Chippewa Oil Co.'s No. 1 Jocelyn, SE SW Section 12-14n-3w, Chippewa Township, Isabella County, has been increased from 150 to more than 850 bbls., setting a new high record for the Mount Pleasant Field. The well came in several weeks ago as the largest initial producer in the new Michigan Field. It came in 300 bbls. a day but had dropped to half the initial flow.

The top of the Dundee formation was struck at 3,518 feet and the top of the pay at 3,551 feet. The bottom of the hole is now about 3,575 feet.

Stilgenbauer and Russell's No. 1 on the Coon lease, which came in two weeks ago as the second producer in Isabella County with a flow of 125 bbls. a day, is being drilled deeper. Top of the Dundee formation was encountered at 3,496 feet, top of the pay 3,529 feet and the bottom of the hole was 3,545 feet before additional drilling. It is about one-quarter mile northeast of the Jocelyn well.

Additional field tanks are being rushed to the Jocelyn well from Muskegon and the new gathering line of the Pure Oil Co. will make possible continued flowing of the well.

GULF COAST

HOUSTON, Tex., Jan. 29.—Vacuum Oil Co.'s No. 22 Miller, Lockport, La., was completed Monday flowing 1,200 bbls. daily of pipe line oil from a sand at a total depth of 4,339 feet. The well had a pressure of 520 pounds and the oil tested 24.8 gravity. Gulf Production Co.'s No. 36 Davis, Big Creek, came in flowing 1,500 bbls. daily at 3,617 feet. This is an old well deepened. At Pierce Junction, an extension was made by Superior Oil Corp.'s No. 4-B Settegast, completed Monday morning for 800 bbls. of pipe line oil daily, opening the first production on the extreme southwest flank of the dome. It is approximately 2,500 feet from the nearest production further up on the west flank.

Another indication of the prolific character of the new Gay Hill Field of Washington County was given Tuesday when the Sun Oil Co.'s No. 1 J. Grote came in flowing at the rate of 155 bbls. hourly. Production is from the shallow sand, topped at 935 feet and at a total depth of 1,250 feet and is flowing through a 1¼-inch choke. This is the third producer completed at Gay Hill, a newly discovered geophysical dome controlled by

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Open New Pool in Coleman District

Important Outpost Well in Wilbarger County. Daily Average Production for North Texas Shows 850 Bbls. Decline

By James H. Dameron
Fort Worth Bureau, The Oil and Gas Journal

FORT WORTH, Tex., Jan. 28.—Opening of a new pool in Coleman County of the Ranger district and the showing of an important outpost well in Wilbarger County in the Wichita Falls area were among the more important developments in the fields during the week. Daily average production in the entire district registered an 850-bbl. decline when Ranger and Wichita Falls districts each declined more than 1,000 bbls. as Panhandle made a recovery that boosted its production to 61,065 bbls.

Texas Pacific Coal & Oil Co.'s No. 1 Gay, in the northwestern part of Section 630, M. A. Fisk Survey, has opened a new Fry sand pool in Coleman County. The well had dry sand at 1,330-37 feet and gas sand at 1,337-50 feet which tested 1,400,000 feet. At 1,352-57 feet the gas increased to 2,500,000 feet and the bit went into dry sand at 1,360-64 feet. The next foot of drilling penetrated the oil sand which is yielding around 30 bbls. daily.

The well was deepened a couple of feet and started showing a little water, indicating the pool will be small in area with a small bed of producing sand. The well is 6 miles east of Santa Anna and near the Brown County line.

It offsets to the west a gas well drilled by Cameron and associates which is producing at present. About a mile to the northeast is another gas well drilled by Midland Oil Co. More than a mile and a half to the northwest are a couple of dry holes and another was drilled a little more than a mile to the south.

Shackelford County

In a new territory opened some time ago by the Petroleum Producers Co. in Shackelford County, the same company drilled its second test to the east about a quarter of a mile and it appears to be a better well than the discovery well. It is located 150 feet from the north and west lines of the SW cor. Section 19, Block 13, T.&P. Survey, and is estimated good for between 50 and 60 bbls. at 1,632-43 feet without a shot.

The Ranger district fell off 1,002 bbls. in daily average production when virtually every pool in the district showed declines that were not offset by new flush. New flush in Shackelford County was not brought in in time to offset the decline of the Cook Ranch Pool production.

Smith & Melat's wildcat test in Section 10, Block 4, H.&T.C. Survey, Wilbarger County, about 2½ miles south of Greyback Pool production, was one of the most interesting wells in the Wichita Falls district. It is estimated to be a potential producer of between 200 and 250 bbls. from sand around 2,012 feet.

This well was drilled in territory not greatly favored and its strike was more or less a surprise. It opens a wide stretch of territory in that area to future drilling.

Jack County Play

The Bryson area in Jack County continues to get an active play and four new locations were announced for that area last week. It is rumored that the Continental company is considering the construction of a pipe line into that new territory regarded by many as having better than the average potentialities.

Panhandle did not have any wells outside routine and its completion report consisted of the good producers drilled more than a week ago. Every county in the Panhandle with the exception of Potter, which was stationary, showed gains in production and the net result was a 1,365-bbl. increase.

At the same time crude runs to storage advanced during the past week. Estimates on the amount of crude run to storage for the previous week showed 6,607 bbls. daily going to storage and figures for this last period show 9,686 bbls. going to storage daily.

PANHANDLE COMPLETIONS
Week Ended January 28

Carson County

Magnolia Pet. Co.'s No. 6 fee No. 244, located 660 feet from north and 660 feet from east line E half Section 91, Block 4, made 725 bbls. at 3,155-61 feet. Stubblefield and others' No. 1 Cooper, located in Section 5, Block 9, made 160 bbls. at 3,055-3,116 feet.

Gray County

The Texas Company's No. 4 H. M. Davis, SE cor. NW Section 86, Block 3, I.&G.N.R.R. Survey, was dry and abandoned at 3,296 feet. United Eight Oil & Gas Co.'s No. 1 Clay, located SE cor. W half SW Section 177, Block B-2, pumped 80 bbls., 2 per cent water, from granite wash at 3,072-80 feet and 3,250-51 feet. Perkins & Cullum's No. 1 Saunders-B made 40 bbls. at 2,910-25 feet. Plains Drilling Co.'s No. 2 Saunders had an initial production of 2,825 bbls. (now 90 bbls. hourly) at 2,555-56 feet. Their No. 1 Chapman-C made 725 bbls. at 2,765-70 and 2,820-30 feet. The Texas Company's No. 1 McLarty-C flowed 31 bbls. after having been shot with 75 quarts at 2,560-2,610 feet. The Texas Company's No. 7 Saunders, located 990 feet from south line and 330 feet from west line W half SE cor. Section 4, Block 1, A.C.H.&B.R.R. Survey, flowed 1,380 bbls., 60 per cent water, at 2,650-61 feet.

Hall County

Rio Bravo Oil Co.'s No. 1 Hughes, Section 39, Block H, I. A. Stephens Survey, was dry and abandoned at 4,500 feet.

Wheeler County

Martin & Debous' No. 1 Close made 55,000,000 feet of gas at 1,350-1,460 feet, 400 pounds rock pressure.

NORTH TEXAS
Estimated Daily Average Production
Week ending January 26

Panhandle district—	Bbls.
Carson County	5,875
Gray County	23,760
Hutchinson County	27,255
Moore County	3,380
Potter County	20
Wheeler County	775
Total this week	61,065
Total last week	59,700
Increase	1,365
Wichita Falls district—	
Archer County	17,702
Baylor County	77
Clay County	451
Cooke County	2,468
Jack County	1,692
Montague County	7,244
Throckmorton County	676
Wilbarger County	28,016
Young County	7,723
Wichita County	28,694
Total this week	94,743
Total last week	95,956
Decrease	1,213
Ranger district—	
Brown County	9,236
Callahan County	3,619
Coleman County	3,309
Comanche County	1,195
Palo Pinto County	383
Ranger	5,490
Shackelford County	11,712
Stephens County	6,475
Total this week	41,419
Total last week	42,421
Decrease	1,002
Grand total this week	197,227
Grand total last week	198,077
Decrease	850

Hutchinson County

Phillips Petroleum Corp.'s No. 1 Sanford (Garford), located 330 feet north and east of SW cor. north 40 acres of east 80 acres of south 160 acres of S 320 acres Section 77, Block 46, H.&T.C.R.R. Survey, made 65 bbls. at 2,926-32 feet and was drilled to a total depth of 2,934 feet.

WICHITA FALLS DISTRICT
Week Ended January 26

Archer County

D. O. Johnson and others' No. 5 Wilson-C made 105 bbls. at 1,569-75 feet. McLaughlin Brothers' No. 1 Jackson was dry and abandoned at 1,577 feet. Reno Oil Co.'s No. 5 Parrish-A made 10 bbls. at 1,571½-82 feet. Jim Turner and others' No. 4 Lyles made 95 bbls. at 1,700-04 feet. American Refinery Properties' No. 1 Benson made 30 bbls. at 838-50 feet, and was drilled to a total depth of 1,101 feet. Its No. 6 Cernosek made 20 bbls. at 1,423-38 feet. G. W. Gilliland and others' No. 1 Symank made 22 bbls. at 1,445½-52 feet. P. J. Lea & Daniel's No. 3 Williams was dry and abandoned at 590 feet. Madden & Hunt's No. 14 Richardson made 65 bbls. at 1,282-98 feet. Perkins & Cullum's No. 3 Williams was dry and abandoned at 615 feet. Petroleum Production & Hines and others' No. 1 Phillips made 25 bbls. at 1,179-80 feet. Prairie Oil & Gas Co.'s No. 3 Richardson-E made 8 bbls. at 1,263-67 feet. The Texas Company & Clayton's No. 1 Engle was dry and abandoned at 1,552 feet.

Clay County

A. C. Camp and others' No. 1 Johnson was dry and abandoned at 404 feet.

Cooke County

Powell Oil Co.'s No. 1 Dennis made 8 bbls. at 1,549-55 feet.

Foard County

Empire & Marland Oil Co.'s No. 1 Halsell was dry and abandoned at 3,212 feet.

Montague County

Chambers & Anchor's No. 1 Parr was temporarily abandoned at 942 feet.

Young County

Booth Oil Co. and others' No. 3 Graham made 7 bbls. at 1,076-1,101 feet. Bradstreet Oil Co.'s No. 1 Snider made 62 bbls. at 560-65 feet. Burns and others' No. 1 Sullivan was dry and abandoned at 606 feet. Carter & Ruff's No. 1 Gragg was dry and abandoned at 865 feet. Fain & McGaha Oil Corp.'s No. 1 Campbell was dry and abandoned at 958 feet. Holbrook & Wood's No. 4 Watson-A was dry and abandoned at 820 feet. Hurst and others' No. 1 Drumm was dry and abandoned at 610 feet. Kleiner and others' No. 27 Langston made 35 bbls. at 532-58 feet. Panhandle and others' No. 12 Prideaux-C made 20 bbls. at 604-14 feet. Panhandle Refining Co.'s No. 1 Weems was dry and abandoned at 702 feet. Pennell and others' No. 1 Drum was dry and abandoned at 602 feet. Petroleum Production Co.'s No. 5 Parrish-A made 5 bbls. at 1,098-1,106 feet. Riggs and others' No. 11 Sweet was dry and abandoned at 602 feet. Underwood Drilling Co. and others' No. 4 Campbell was dry and abandoned at 945 feet. Walton and others' No. 1 Prideaux was dry and abandoned at 612 feet.

Wilbarger County

Consolidated Oil Co.'s No. 3 Waggoner-B was dry and abandoned at 1,889 feet. Cosden & Co.'s No. 33 Waggoner-B made 56 bbls. at 2,320-27 feet. Fain McGaha Oil Corp.'s No. 2 Waggoner-AA made 170 bbls. at 2,364-78 feet. Golding Cochran and others' No. 2 Waggoner-H made 100 bbls. at 2,316-2,428 feet. Phillips Petroleum Corp.'s No. 3 Norwood Waggoner made 103 bbls. at 2,367-87 feet. Its No. 3 Waggoner-FF made 60 bbls. at 2,284-91 feet and was drilled to a total depth of 2,292 feet. Staley & Wynne's No. 1 Waggoner-W was dry and abandoned at 1,975 feet. Stedman & Thrasher's No. 1 Waggoner was dry and abandoned at 2,500 feet. The Texas Company's No. 8 Waggoner made 80 bbls. at 2,400-18 feet. Waggoner Refining Co.'s feet. Humble Oil & Gas Co.'s No. 7 W.

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WILDCAT OPERATIONS IN TEXAS PANHANDLE

Week ended January 26

CARSON COUNTY

Company, well, farm, name, section and block—	Remarks—
Denson et als' No. 1 W. E. Cobb, 930 ft. from N line, 280 ft. from E line, W½ NW, Sec. 184, Blk. 2, I.&G.N. Sur.	Drlg. 1,012 ft.
Delmar Oil Co.'s No. 3 Noel, 330 ft. from E line and 990 ft. from N line W½ SE, Sec. 198, Blk. 3	Rigging.
Duncan & Reiger's No. 1 J. B. Hodges, 330 ft. from E line and 330 ft. from S line, W½ NW, Sec. 112, Blk. 7, I.&G.N. Sur.	Rig on ground.
Holmes et als' No. 1 Quinn, 330 ft. from S and 330 ft. from E line SW, Sec. 7, Blk. 9, I.&G.N. Sur.	Drlg. 580 ft.
Morris et als' No. 1 Barnard, NW cor. SW SE, Sec. 44, Navajo Oil Co.'s No. 2 Poling, 660 ft. from W and 330 ft. from N lines, N 30 ac. SW, Sec. 22, Blk. X-2, T.T.R.R. Sur.	Drlg. 913 ft. Drlg. 3,850 ft.
Reynolds et als' No. 1 E. Cooper, 330 ft. from S line and 330 ft. from E line NW, Sec. 5, Blk. 9, I.&G. N.R.R. Sur.	Drlg. 2,100 ft.
Spartan Oil Co.'s No. 1 S. Bednorz, NW cor. E½ NW, Sec. 202, Blk. 3, I.&G.N. Sur.	Drlg. 2,185 ft.
Skelly Oil Co.'s No. 10 Schaffer, 1,320 ft. from W line and 330 ft. from S line of N½, Sec. 188, Blk. 3, I.&G.N.R.R. Sur.	Drlg. 3,140 ft.
Skelly Oil Co.'s No. 11 Schaffer, 330 ft. from S line 990 ft. from W line, Sec. 88, Blk. 4, I.&G.N. R.R. Sur.	Spud.
Skelly Oil Co.'s No. 12 Schaffer, 330 ft. from S line and 1,650 ft. from W line of Sec. 88, Blk. 4, I.&G.N.R.R. Sur.	Building rig.
Travis et als' No. 1 D. A. Harrell, C NE NE, Sec. 162, Blk. 7, I.&G.N. Sur.	Fish. 2,510 ft.
Ware et als' No. 1 Ware, 990 ft. S and 400 ft. E NW cor. Sec. 18, Blk. 3, A.B.&M. Sur.	Running 6-in. casing 3,300 ft.

CASTRO COUNTY

Colorado O. & R. Co.'s No. 1 M. Slemmons, SW cor. Sec. 73, Blk. M-17, B.S.&F. Sur.	Rig blown down.
Mystery Oil Co.'s No. 1 J. I. Crum, SE cor. NE, Sec. 333, Blk. M-6, S.K.&K. Sur.	S.D. 510 ft. for csg.

CHILDRESS COUNTY

C. L. Sloane et als' No. 1 B. P. Smith, Sur. 49, F. P. Knott lands	Drlg. 4,312 ft.
The Texas Co.'s No. 1 Smith, 100 ft. each way from NW cor. Sec. 174, Blk. H. W.&N.W. Sur.	Hole full sulphur wtr. 3,985 ft.; S.D. 4,605 ft.

COCHRAN COUNTY

V. T. Bolin et al's No. 1 C. C. Slaughter, 1,650 ft. E and 660 ft. S of NW tract, League 118, Knox County School land	Rigging.

COTTLE COUNTY

Explin. Co.'s No. 1 Richards	Drlg. 2,250 ft.
Explin. Co.'s No. 4 Matador Land & Cattle Co., C. Sec. 46, J. H. Stephens Sur.	Fish. 2,940 ft.
Skelly Oil Co.'s No. 1 J. H. Cannon	H.F.W. 3,558 ft.; drlg. 4,020 ft.
Sun Oil Co.'s No. 1 T. B. Yarborough, 485 ft. S and 2,460 ft. E NW cor. Sec. 551, Block H. W.&N.W. Sur.	U.R. 6-in. csg. 3,440 ft.

DONLEY COUNTY

Beaudoin et als' No. 1 Ball, 1,075 ft. from N line and 985 ft. from E line, Sec. 22, Blk. E. D.&P.R.R. Sur.	Location.

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Well Between Tiner and Noodle Creek

Jones County Section Getting Most Active Wildcat Play in West Texas. Sharp Increase in Runs to Storage

By James H. Dameron
Staff Correspondent, West Texas Fields

FORT WORTH, Tex., Jan. 28. — A sharp increase of runs to storage in West Texas, discovery of production half way between the Tiner and Noodle Creek Pools in Jones County, and developments in other scattered sections of West Texas were among the more prominent developments during the week.

As production in the basin increased, pipe line runs and runs to refineries in West Texas declined, increasing the runs to storage to approximately 80,000 bbls. daily for the week ending January 17. This is the most rapid rate at which crude in West Texas has been run to storage in several months.

The greatest drop in pipe line runs was reflected in the movements of crude through the Magnolia Pipe Line Co.'s system running east from Midland. Runs through that line dropped 15,000 bbls. At the same time Atlantic Pipe Line Co.'s runs to the coast from Midland increased approximately 8,000 bbls. Little change was noted in the movements of crude through other lines.

Tank car shipments increased a few hundred barrels, but runs to refineries in West Texas declined 5,000 bbls. At the same time production jumped upward 11,000 bbls. A table showing the distribution of crude in West Texas for the past two periods is given at the end of this article.

Runs to storage have been increasing each week for the past few weeks and last week rumors were circulated that two major companies were planning a big amount of steel storage. Illinois Pipe Line Co. is reported planning the construction of 25 more 80,000-bbl. steel tanks at Del Rio. Humble Oil & Refining Co. is variously reported to be planning the erection of anywhere from ten to fifty 55,000-bbl. capacity tanks to be built in various sections of West Texas. Neither report has been verified.

Jones County Producer

Phillips Petroleum Co.'s No. 1 Campbell, NW cor. SE of the Campbell tract in Section 15, Block 19, half way between Noodle Creek and the Tiner Pool in Jones County, is estimated to be a producer good for between 40 and 50 bbls. at 2,531-47 feet. The well made 41 bbls. on a 16-hour swab test the latter part of the week.

Completion of this well as a commercial producer will to a great extent bear out the opinion of many geologists that production would be found all the way north from Noodle Creek to the Tiner and Bickley Pools. The latter two pools have been the dominant factor in the steady increase in Jones County production and that general section is getting one of the most active wildcat plays in West Texas.

Yates Pool

Both Yates and Hendricks reported their usual number of routine completions with a sprinkling of big wells among them. Increasing activity around the Pecos Valley Pool, north of Fort Stockton in Pecos County, is evinced in the recent trades there. Both the California Co. and Independent Oil & Gas Co. purchased acreage in that territory and other deals are pending.

Pecos Valley Oil Co.'s discovery well continues to hold up remarkably well in production and the operating company is to build a pipe line from the pool to a loading rack on the Orient railroad north of the well. The railroad company has completed its spur to the loading rack and the company is laying a 2-inch line on the surface. In the event sufficient production is found this line will be replaced with one of sufficient capacity to care for the load.

Hendricks Pool

In the Hendricks Pool Bankers Production Co.'s well on a five-acre tract in Section 30, Block B-5, was opened up and reported to have produced 11,000 bbls. in five days. The Atlantic Oil Producing Co. opened its wells on the adjoining lease and the wells showing water are reported to have increased considerably in water percentage.

Over to the east of the field McGinley Corp., which took over the V. T. Bolin well put it on a pump test late last week and it is reported to have made 145 bbls. in 20 hours. This gauge is not generally considered a true gauge. It has been closed in for several weeks and the production has been accumulating.

Green Oil Co.'s No. 3 Clay in the SW part of Section 127, Block 29, Howard County, extended the 2,500-foot pay in the Roberts-Settles Pool to the northeast when it was completed as a 125-bbl. well. The 2,500-foot pay has been found south of this lease, but the Green company well is the farthest north and east 2,500-foot producer.

Another Glasscock County well to attract attention is Gibson and Johnson's No. 1 Mann, C NW Section 6, Block 33, T-5-S T.&P. Survey. The well topped the salt at 1,170 feet and has a surface elevation of 2,703 feet. It is running approximately 25 feet higher than the other tests in that immediate area.

Roberts Pool

The 63 wells reported on in the umpire's report of the potential gauges of lime producers in the Roberts Pool of southern Howard County have a potential production of 46,321 bbls. Some of the wells listed in the report did not have their gauges indicated.

Six wells in the 2,200-foot pay zone, a pay zone recently discovered, had a potential production of 6,888 bbls. The discovery well of this zone which was rated a 7,000-bbl. initial producer, was given a proration rating of 1,620 bbls. and a daily allowed production of 972 bbls. Forty-six wells in the 3,000-foot lime pay zone had a potential production of 36,206 bbls., and 11 wells in the 2,500-foot lime zone had a potential production of 3,227 bbls.

The greatest potential producer in the pool is Amerada Petroleum Corp.'s No. 3 Dora Roberts, Section 137, Block 29. It is a 3,000-foot producer and has a potential production of 3,186 bbls. and a daily allowance of 1,912 bbls. Magnolia Petroleum Co.'s discovery well, No. 1 Dora Roberts, had a potential gauge of 950 bbls.

Runs from the lime producing wells in the pool for December totaled 880,622 bbls., according to recent reports. Superior Oil Co. led the list with 141,595 bbls. and Magnolia Petroleum Co. was next in line with 116,508 bbls. The Roberts Pool operators will hold a meeting in Dallas Tuesday night for the purpose of increasing runs from the pool.

Big Lake Pool

Texon Oil & Land Co.'s deep well in the Big Lake Pool in Reagan County is still on the upward trend and increasing in importance. The highest gauge yet made was recorded Monday morning when it put 1,735 bbls. in the tanks. The gas flow for the same 24-hour period had increased to 18,755,000 feet. The well's production curve crossed the 1,700-bbl. mark Sunday morning when it gauged 1,705 bbls. The previous 24-hour gauge was 1,692 bbls. Since the deep pay at 8,525 feet was tapped in December the well has produced approximately 70,000 bbls. to date.

In connection with this Kingwood Oil Co.'s No. 1 J. D. Suggs, SE NW SE Section 19, Block 1, Irion County, is the most interesting deep test being drilled at this time in West Texas. This well was originally started by Wesley West and associates as a shallow test. Later it was taken over by the Kingwood company and after making a show at 3,368 feet the Kingwood company decided to carry it on down.

At the present time the well is drilling below 5,100 feet and it is planned to drill it to 6,000 feet. During the last 1,000 feet of drilling the formation of lime and shale has not changed. It is not hard drilling but the hole stands up remarkably. It is comparable to the formation drilled through in the Texon company's 8,500-foot well.

Many geologists watching this well hold the opinion the pay found in the Texon well will be found in the Kingwood well around 5,600 to 6,000 feet. When the formation changes it is expected that either oil, gas or water will be encountered. Irion County adjoins Reagan County on the east. If after drilling to 6,000 feet the formation does not change it is likely that adjoining lease owners will help finance the test on down to 8,500 feet.

Another 8,500-foot test for West Texas in wildcat territory may be started early this spring. Five more 8,500-foot wells are scheduled to be drilled in the Big Lake Pool, four by the Big Lake Oil Co. and one by the Texon company.

WILDCAT OPERATIONS IN WEST TEXAS

Week Ended January 26

Company, farm and location—	Remarks—
ANDREWS COUNTY	
Deep Rock Oil Co.'s No. 1 Hostetler, 2,310 ft. N and W of SE cor. Sec. 20, Blk. A-46	Hole full water 1,390 ft.; underreaming 10-in. casing; top salt 1,890 ft.; shut down 1,990 ft.
BORDEN COUNTY	
Teas & Wheeler's No. 1 Long, 1,320 ft. N and E of Sec. 27, Blk. 30, T.&P. Sur.	Location.
BREWSTER COUNTY	
E. W. Bateman et al's No. 1 Nevill, 2,000 ft. from S line and 1,000 ft. from W line of Sec. 64, Blk. 13, G.H.& S.A.R.R. Sur.	Drlg. 1,300 ft.
Brewster Oil Co.'s No. 1 fee, 2,640 ft. S and 2,598 ft. E of NW cor. Sec. 4, Blk. G-15, G.C.&S.F.	Rigged up and shut down.
Cowden & Bowser's No. 1-A Jackson & Harmon, Sec. 1, Blk. 331, T.C.R.R. Sur.	Set 8-in. 1,530 ft.; shut down 2,000 ft.
Forrest Oil Co.'s No. 1 Skinner, C SW SE Sec. 100, Blk. 2, G.C.&S.F. Sur.	Shut down 1,145 ft.
J. M. Hickey's No. 1 Jackson & Harmon, NE cor. Sec. 182, Blk. 9, G.H.&S.A. Sur.	Shut down 1,150 ft.
Van McPhail's No. 1 McIntyre, SE cor. Sec. 59, Blk. 352, 7 mi. S of Alpine	Shut down 1,740 ft.
Williams and others' No. 1 Poncey, 459 ft. S and 1,062 ft. E Sec. 26, Blk. 214, T.&St.L.R.R. Co.	Shut down 515 ft.
COKE COUNTY	
Cates & Dennis' No. 1 Mimms, 2,500 ft. S and 330 ft. E of NW cor. Sec. 47, Blk. 4, T.&P. Sur.	Shut down 1,465 ft.
Lipan Oil Co.'s No. 1 E. C. Rawlings, Sec. 390, Blk. 1-A, H.&T.C. Sur., elev. 2,750 ft.	Shut down 2,860 ft.
Louisiana O. & R. Co.'s No. 1 Powers, 745 ft. S and 2,310 ft. E of NW cor. Sec. 156, Blk. 2	Hole full water 2,980 ft.; underreaming casing 3,373 ft.; drlg. 3,587 ft.
Mid-Kansas Oil Co.'s No. 1 W. E. Lackey, 330 ft. N and E of SW cor. Sec. 272, Blk. 1-A, H.&T.C.	Cem. 6⅝-in. casing 3,033 ft.
CONCHO COUNTY	
Duffey & Silk.'s No. 1 Hill, 150 ft. N and E of SW cor. Sec. 8, Blk. 70, H.&T.C.	Drlg. 1,185 ft.
Duffey & Silk's No. 1 Noyes, C SE Sec. 19, Blk. 70, H.&T.C. Sur.	Location.
Duffey & Silk's No. 1 Lovelace and Lockett, 1,056 ft. N and 640 ft. W of SE cor. Sec. 66, Blk. 70, H.&T.C. Sur.	Shut down 650 ft.
Exploration Co.'s No. 2 Hartgrove, 990 ft. S and 985 ft. E of NW cor. Johann Scheuch Sur. No. 240	Rig.
Loyd Jones Co.'s No. 1 Jones, 420 ft. S and 15 ft. E of NW cor. John G. Reh Sur. No. 1,878	Drilled to 660 ft. and shut down.
Posey's No. 1 Elvidge, C NW Sec. 39, H.&T.C.R.R. Sur.	Shut down 300 ft.
CRANE COUNTY	
Duffey and others' No. 4 Cowden, 1,320 ft. S and 440 ft. W of Sec. 18, Blk. X, C.C.S.D.&R.G.N.G.	Drlg. 1,600 ft.
Gulf Prod. Co.'s No. 6 Waddell, C NW NE Sec. 12, Blk. B-25	Drlg. 820 ft., red rock.
CROCKETT COUNTY	
Barbara Oil Co.'s No. 1 Cox, 237 ft. S and 1,190 ft. E of NW cor. R. B. Dickenson Sur.	Show gas 1,000 ft.; shut down 1,290 ft.; flowing water.
Lewis & Daniels' No. 1 Pecos River Bed, 19 yards S and 37 degrees E of NW cor. Sec. 33, Blk. 1, I.&G.N. Sur.	Shut down 80 ft.
W. W. Donnelly & Young's No. 1 Shannon, SW SW SE Sec. 42, Blk. BB, T.C.R.R. Sur.	Shut down 1,719 ft.
W. W. Donnelly & Young's No. 1 Middlebuster, C Sec. 11, Blk. 9, D.&S.E. Sur.	7,000,000 ft. gas at 1,663 ft.; shut down 1,690 ft.; small oil show.
J. D. Wheeler's No. 1 State Land, 744 ft. S and 1,250 ft. E from SE cor. Sec. 73, Blk. 1, I.&G.N.R.R. Sur., but in Vacancy Strip	Shut down 337 ft.

(Continued on Page 202)

WEST TEXAS

Estimated Daily Average Production for the Week Ended January 26

County—	Wells	Prod.
Crane County	272	36,337
Crockett County	47	2,382
Ector County	2	Off
Fisher County	7	855
Glasscock County	18	512
Howard County	241	38,009
Jones County	62	7,675
Loving County	8	400
Mitchell County	142	2,804
Pecos County	285	73,050
Reagan County	238	18,945
Runnels County	3	155
Scurry County	5	30
Upton County	261	13,537
Ward County	1	93
Winkler County	521	176,554
Total this week		371,040
Total last week		369,040
Increase		2,000

WEST TEXAS COMPLETIONS

Week Ending January 26

Borden County

Condor Oil Co.'s No. 1 Hall, located 1,650 feet south and west of NE cor. Section 5, Block 32, Township 3n, T&P. R.R. Survey, was dry and abandoned at 3,820 feet.

Howard County

Amerada Petroleum Corp.'s No. 3 Dora Roberts, located 990 feet south and west of NE cor. Section 128, Block 29, swabbed 572 bbls. in 14 hours at 2,917-56 feet. Hyer & Yates' No. 2 H. R. Clay, located in Section 155, Block 29, made 300 bbls. at 1,802-39 feet. Magnolia Petroleum Co.'s

(Continued on Page 251)

The "junk heap" is the most graphic symbol of American prosperity

The refiner who hesitates to junk obsolete equipment and install the newest and most efficient, soon lags behind and is lost in the dust of prosperity, or drowned in his own fuel oil

Millions of dollars worth of earlier refinery equipment has been made obsolete by the Dubbs Cracking Process — while its operation is putting many more millions back into the pockets of the refiners who are using it

Universal Oil Products Co
Chicago, Illinois

Dubbs Cracking Process
Owner and Licensor

Many Failures for Maud and Mission

Oklahoma Fields Quiet After Price Reduction. Field's Output Steady. Allen Field Deep Sand Well Showing Some Water

By J. L. Dwyer

In one of the quietest weeks which the State has witnessed in some time, the oil fields of Oklahoma seem to be following the rule of running contrary to regular conditions, and it was a "calm after the storm." The storm was represented by the sweeping crude oil price reductions throughout Oklahoma and Kansas by the Carter Oil Co. which was rapidly followed by the other crude purchasing concerns. It was the inevitable consequence of the rapidly mounting oil production occurring at this time of year, when the gasoline demands are at their low ebb.

The sharp reduction of the higher gravities of crude oil will have considerable weight in stopping the drilling, and in the Seminole area where the average reduction was 22 cents per barrel, there will be few unnecessary wells drilled.

It is the consensus of opinion that while it causes some hardships in the matter of income, the price reduction accomplished considerably more than several series of shutdown meetings. It automatically establishes a much greater measure of conservation than the efforts of the shutdown committee could possibly do. There are many market students who are inclined to believe that the reduction will have a wholesale effect over a period of time, but in the meantime, it manages to click off $66,000 daily from revenue of the Seminole Field and $28,600 daily from the St. Louis Field.

Water in Mission Wells

There was little activity in the fields, and few important wells were completed. The appearance of water in the top of the Wilcox sand in some wells in the Mission Pool of Greater Seminole did little to improve the prospects of that area. A very important feature of the week was a decline in output and the appearance of water in the Wilcox sand discovery well of the Allen Field.

The daily average production of the State changed little from last week, a slight decrease being the net change. The Greater Seminole area produced an average of 291,110 bbls. daily this week, which constituted an increase of 2,845 bbls., but this was partially offset by the decrease in the St. Louis Pool of 1,240 bbls.

In the Mission Pool, the Prairie Oil & Gas Co.'s No. 1 Micco, SE cor. SW SE, Section 5-8-6, found a hole full of water in the Wilcox sand 4,350-65 feet. The Gypsy Oil Co.'s No. 3 Mission, SW cor. SE SW, Section 5-8-6, is also a failure in the Wilcox finding water at 1 foot in the sand. The sand in this well was 4,395-96 feet and the hole filled up 400 feet with a fluid containing some oil and much water. It is listed as a failure.

Maud District

Just to the west of the Mission Pool, there have been five dry holes drilled to the Wilcox sand in the Maud district which makes the chances of finding production in that horizon very limited. The dry holes are the Gypsy Oil Co.'s No. 2 Bourassa, NE cor. NE, Section 7-8-5; Gypsy Oil Co.'s No. 2 Fife, SW cor. NW NE, Section 14-8-5, is also a failure in the Wilcox. This well is one-quarter mile south and one location east of the Barnsdall Oil Co.'s No. 1 Fife which discovered the Wilcox in this region. The Barnsdall Oil Co.'s No. 3 Fife, NW cor. SE NW, Section 14-8-5, is also a failure in the Wilcox. This well is one-quarter mile southwest of the discovery well. The Prairie Oil & Gas Co.'s No. 1 Mitchell, NE cor. SE NE, Section 15-8-5, further seals the fate of the southwest trend from the discovery well when it found the Wilcox dry.

The Shell Petroleum Corp.'s No. 1 Wiley, SW cor. NW NW, Section 8-8-5, is another Wilcox failure which does not improve the looks of Township 8-5.

There is no real change in the situation at Oklahoma City, the discovery well is still producing 5,700 bbls. daily, and there are no additional completions. It will probably be June before any of the deep tests reach the sand in this region.

St. Louis Pool

The St. Louis Pool of Pottawatomie County also had a quiet week with no outstanding completions. The production of the Wilcox sand wells in this pool on Monday morning, January 28, follows:

Barnsdall Oil Co.:	
1 Stahl	440
2 Stahl	65
3 Stahl	685
Gypsy Oil Co.:	
4 Leclaire	700
Gypsy-Sinclair et al:	
1 Stahl	2,220
2 Stahl	4,911
4 Stahl	800
5 Stahl	1,050
6 Stahl	0
8 Stahl	80
Independent Oil & Gas Co.:	
1 Youts	6,710
2 Youts	0
3 Youts	3,435
4 Youts	3,095
5 and 6 Youts	1,860
7 Youts	1,645
8 Youts	2,270
Interocean Oil Co. et al:	
3 McGee	587
Magnolia Petroleum Co.:	
1 Cherry A	332
1 G. Fyke A	1,764
1 T. Fyke A	116
1 T. Fyke B	3,097
1 Hembree	40
2 Hembree	0
3 Hembree	1,700
4 Hembree	2,120
2 C. A. Youts	504
1 H. E. Youts	0
2 H. E. Youts	70
3 H. E. Youts	350
4 H. E. Youts	1,602
5 H. E. Youts	1,400
6 H. E. Youts	1,950
7 H. E. Youts	1,165
Mid-Cont. Pet. Corp.:	
1 Guinn	0
Phillips Pet. Co.:	
2 Stahl	0
3 Stahl	620
4 Stahl	268
Prairie Oil & Gas Co.:	
1 Wolfe	735
2 Wolfe	1,025
3 Wolfe	1,224
4 Wolfe	496
Pure Oil Co.:	
1 Thomas	4,450
2 Thomas	4,800
3 Thomas	4,445
4 Thomas	200
Shaffer Oil & Ref. Co.:	
1 Cherry	1,080
3 Cherry	242
4 Cherry	1,110
Shell Pet. Corp.:	
1 Smith	0
Sinclair Oil & Gas Co.:	
5 Blandin	280
12 Blandin	85
13 Blandin	2,585
1 Nadash	170
T. B. Slick, Inc.:	
1 Hembree	0
2 Hembree	1,120
3 Hembree	5,065
4 Hembree	5,440
1 Youts	150
2 Youts	825
3 Youts	110
4 Youts	250
2 Davis	4,475
Texas-Fuhrman:	
1 Cherry	2,000
2 Cherry	400
3 Cherry	2,700
4 Cherry	3,035

In the Allen deep sand operation, the Sinclair Oil & Gas Co.'s No. 2 Amos in Section 7-5-8 is dropping in output and cutting 2½ per cent. This is the Wilcox sand discovery well of the region, and it is now making 990 bbls. daily.

Creek County

A. A. Bailey and others moved the rig out for No. 1-A Williams, SE cor. NW NE, Section 30-19-8. William Sherry and Carter Oil Co.'s rig is up for No. 1 Harmon, SW cor. SE NE, Section 28-19-9. Evans Brothers' No. 1-A Evans, NW cor. SE, Section 31-19-9, is drilling deeper and has a show of oil in sand at 2,540-65 feet. Tidal Osage Oil Co.'s No. 2 C. Lee, NW cor. NE NW NE, Section 13-18-11, is drilling deeper at 2,170 feet. H. U. Bartlett's No. 1 Berryhill, CWL NW NW, Section 1-17-11, is drilling at 1,720 feet.

Shaffer Oil & Refining Co.'s No. 1 Kelly, NW cor. NE, Section 7-19-7, has been completed for 125 bbls. in sand at 3,108-57 feet. Anderson and others' No. 1 Manuel, SE cor. NE SE, Section 16-19-7, made a 50-bbl. pumper in sands at 2,540-2,755 feet. H. U. Bartlett's No. 1-A Sewell, NE cor. Section 18-19-9, has been completed for 2,500,000 feet of gas in sand at 2,114-31 feet. Magnolia Petroleum Co.'s No. 23 Musselman, NE cor. SE NW NE, Section 8-18-7, made 15 bbls. from sand at 2,549-64 feet. Anthony Wayne's No. 1 Deere, NW cor. NE, Section 13-18-8, is dry and abandoned at 3,376 feet. Twin State Oil Co.'s No. 5 Coachman, SW cor. NW NE, Section 20-17-7, made 60 bbls. from sand at 2,787-2,810 feet.

Pontiac Oil Co.'s No. 11 Fulsom, NE cor. SW SW, Section 13-17-10, was shot with 60 quarts and made 7 bbls. from sand at 1,889-1,902 feet. J. E. Wallace's No. 2 McComas, NW cor. Section 24-17-11, has been completed for 2,000,000 feet of gas in sand at 1,940-59 feet. Jackson & Wise's No. 3 Sapulpa, C NW NE, Section 3-17-11, has been abandoned at 1,964 feet. Magnolia Petroleum Co.'s No. 5 Emarthla, NE cor. SW, Section 5-16-8, made 75 bbls. from sand at 3,521-47 feet. Continental Oil Co. and others' No. 1 Unallotted, SW cor. Section 7-16-12, is dry and abandoned at 2,822 feet. Madden & Madden's No. 1 Childers, NW cor. NE, Section 24-15-9, is making 125 bbls. from sand at 3,441-54 feet. Transcontinental Oil Co.'s No. 1 Taylor, NW cor. SW SE, Section 10-14-9, is a dry hole at 3,734 feet. Hall & Donnelly's No. 1 Johnson, NE cor. SE NW, Section 17-14-10, is dry and abandoned at 3,520 feet.

Carter County

Max Westheimer and others made location for No. 1 Ed Cox, NW cor. Section 25-1s-3w. Magnolia Petroleum Co. has the rig up for No. 1 T. Pollock, NE cor. Section 8-1s-3w. Humble Oil & Refining Co.'s No. 1 Hitchcock, SE cor. SW NE NE, Section 12-4s-3, is drilling at 810 feet. Magnolia Petroleum Co.'s No. 2 E. Gill, NE cor. SE SE, Section 23-1s-3w, has been completed for 33 bbls. in sands at 2,296-2,560 feet.

Cotton County

Razor & Akins' No. 1 McComb, NW cor. NE SW, Section 35-1s-10w, is rigging up.

Garvin County

Texas Pacific Coal & Oil Co.'s No. 4 H. Derdeyn, NE cor. SW SE, Section 8-1-3w, is rigging up. Magnolia Petroleum Co. is building the rig for No. 1 Pearce, NE cor. SW NW, Section 14-1-3w.

Grant County

Consolidated Gas Utilities Co.'s No. 1 Forsythe, SE cor. NE NE NW, Section 2-27-3w, has been completed for 10,000,000 feet of gas in sand at 4,195-4,288 feet.

Kay County

Marland Production Co.'s No. 1 North No. 2, SW cor. Section 2-26-1w, Hubbard Pool, is preparing to plug back from 3,664 feet to the Layton sand and shot. Ingram & Wilson's No. 1 School Land, C NE NE, Section 36-25-1w, is drilling at 280 feet, testing for gas.

Tidal Oil Co.'s No. 2 Cole, C SE SE, Section 18-29-1, Vernon Pool, was deepened from 3,311 feet to 3,328 feet and is producing 105 bbls. Nehr, Wilson and others' No. 1 Boesch, SE cor. NW SE, Section 8-27-1, has been completed for 1,000,000 feet of gas in sand at 910-13 feet. Wilson & Wright's No. 1 Schmidt, NE cor. SE, Section 15-27-1, is dry and abandoned at 725 feet. Marland Production Co.'s No. 3 North No. 2, NW cor.

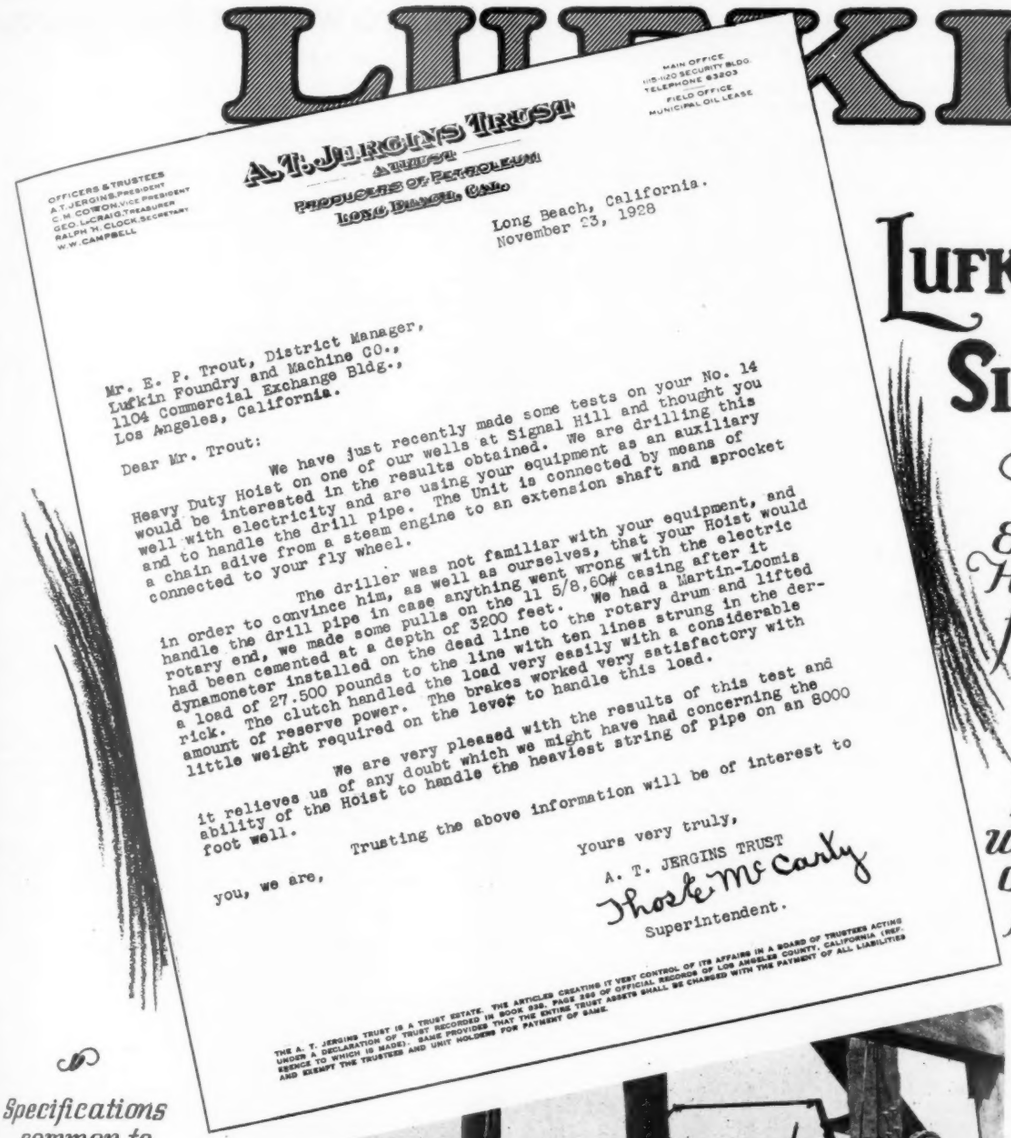
WILDCAT OPERATIONS IN OKLAHOMA

NORTHERN OKLAHOMA

Company, farm and location—	Remarks:
LATTIMER COUNTY	
Limestone Oil & Gas Co.'s No. 1 McMurray, SW cor. SW Sec. 15-5-18	1,000,000 ft. gas 2,518-20 ft.
GRANT COUNTY	
Cowden and others' No. 2 Vollmer, CEL NE SW Sec. 22-25-4w	Shut down 5,640 ft.
Lario-Lathrop's No. 1 Cornell, NW cor. NW Sec. 24-28-3w	Shut down 1,670 ft.
HARPER COUNTY	
Hoffer Oil Co.'s No. 1 Cooper, NW cor. SE SE Sec. 12-25-22w	Shut down 4,130 ft.
KAY COUNTY	
Wentz Oil Corp.'s No. 1-A Ward, C NW SE SW Sec. 32-27-1e	Drlg. 820 ft.
WOODWARD COUNTY	
Sharon Oil Co.'s No. 1 Elmore, SW cor. NW Sec. 25-21-21w	Rig blown down 3,025 ft.
Billy's Oil Co.'s No. 1 Watt, C SE Sec. 9-23-20w	Drlg. 1,700 ft.
Burgoyne Brothers' No. 1 Merkins, SW cor. SE NE Sec. 15-21-19w	Cleaning out 1,910 ft.
Farrond and others' No. 1 Johnson, SW cor. SW Sec. 1-23-17w	Underreaming 1,560 ft.
GARFIELD COUNTY	
E. L. Love and others' No. 1 White, SE cor. NW Sec. 9-24-6w	Shut down 4,755 ft.
NOBLE COUNTY	
Alco Royalty Co.'s No. 1 Waltermire, SE cor. NW Sec. 33-21-1w	Drlg. 2,398 ft.
Marland Oil Co.'s No. 1 Kidd, NW cor. SW Sec. 32-20-1w	Shut down 5,290 ft.; plugging back to show oil 1,836 ft.
KINGFISHER COUNTY	
McKinney & Crawford's No. 1 Sturgeon, NE cor. SW Sec. 27-16-6w	Drlg. 4,895 ft.
LOGAN COUNTY	
Haley & Smith's No. 1 Guier, SE cor. SW Sec. 33-18-3w	C.O. 3,960 ft.
J. L. Donahoe's No. 2 fee, SW cor. NW SE Sec. 21-18-2w	Dry and abd. 6,022 ft.
BLAINE COUNTY	
Lowen and others' No. 1 Unknown, NW cor. SW NW Sec. 27-16-11w	Spudded and shut down; renewing leases.
W. J. Donnelly, trustee's, No. 1 Dickens, NE cor. SE Sec. 26-15-12w	Drlg. 4,450 ft.
Ragland and others' No. 1 Unknown, C NW SW Sec. 13-19-10w	Rig.
LINCOLN COUNTY	
Phillips Pet. Co.'s No. 1 Stephens, SE cor. NW Sec. 29-12-3	Rig.
Morgan & Flynn's No. 1 Finlay, SW cor. SW Sec. 19-16-6	Location.
McLAIN COUNTY	
Empire Oil & Ref. Co.'s No. 1 Bonner, SE cor. NW NW Sec. 29-5-3	Drlg. 4,330 ft.

(Continued on Page 206)

LUFKIN



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LONG BEACH, CAL.

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TELEPHONE 62203
FIELD OFFICE
MUNICIPAL OIL LEASE

Long Beach, California.
November 23, 1928

Mr. E. P. Trout, District Manager,
Lufkin Foundry and Machine CO.,
1104 Commercial Exchange Bldg.,
Los Angeles, California.

Dear Mr. Trout:

We have just recently made some tests on your No. 14 Heavy Duty Hoist on one of our wells at Signal Hill and thought you would be interested in the results obtained. We are drilling this well with electricity and are using your equipment as an auxiliary and to handle the drill pipe. The Unit is connected by means of a chain adive from a steam engine to an extension shaft and sprocket connected to your fly wheel.

The driller was not familiar with your equipment, and in order to convince him, as well as ourselves, that your Hoist would handle the drill pipe in case anything went wrong with the electric rotary end, we made some pulls on the 11 5/8,60# casing after it had been cemented at a depth of 3200 feet. We had a Martin-Loomis dynamometer installed on the dead line to the rotary drum and lifted a load of 27.500 pounds to the line with ten lines strung in the derrick. The clutch handled the load very easily with a considerable amount of reserve power. The brakes worked very satisfactory with little weight required on the lever to handle this load.

We are very pleased with the results of this test and it relieves us of any doubt which we might have had concerning the ability of the Hoist to handle the heaviest string of pipe on an 8000 foot well.

Trusting the above information will be of interest to you, we are,

Yours very truly,
A. T. JERGINS TRUST
Thos. McCarty
Superintendent.

THE A. T. JERGINS TRUST IS A TRUST ESTATE. THE ARTICLES CREATING IT VEST CONTROL OF ITS AFFAIRS IN A BOARD OF TRUSTEES ACTING UNDER A DECLARATION OF TRUST RECORDED IN BOOK 930, PAGE 295 OF OFFICIAL RECORDS OF LOS ANGELES COUNTY, CALIFORNIA (REFERENCE TO WHICH IS MADE). SAME PROVIDES THAT THE ENTIRE TRUST ASSETS SHALL BE CHARGED WITH THE PAYMENT OF ALL LIABILITIES AND EXEMPT THE TRUSTEES AND UNIT HOLDERS FOR PAYMENT OF SAME.

Lufkin Hoists at Signal Hill

8,000 ft. wells Hold no terror for Lufkin Hoists

Handles the heaviest loads with the greatest of ease.

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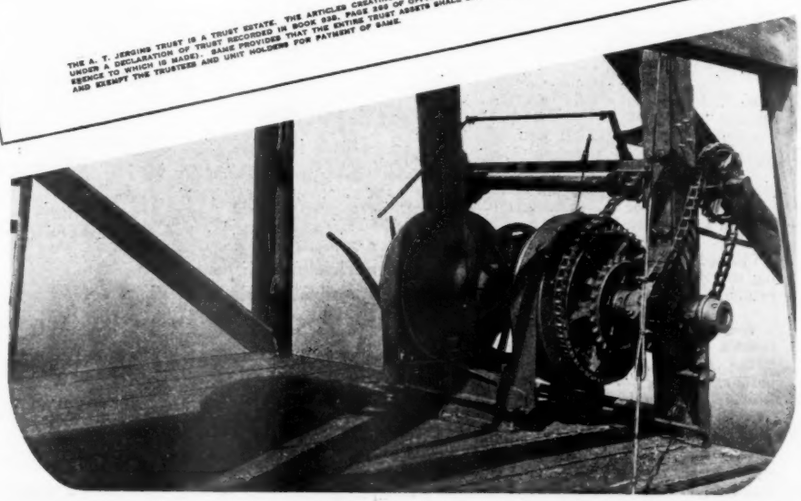
Loose Drum Type
High Speeds
Roller Bearings
No Positive-Clutches
Rugged-Strong



Lufkin hoists are built to suit any condition

Manufactured at Lufkin, Texas, by
THE LUFKIN FOUNDRY AND MACHINE CO.
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PLEASE SEND COMPLETE CATALOGUE
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SW SW, Section 2-26-1w, Hubbard Pool, has plugged back from 3,644 feet to 2,990 feet and is making 60 bbls.

Kiowa County

J. R. Travis' No. 1-A Hobbs, CSL NW SW, Section 7-6-16w, Gotebo area, is drilling at 28 feet. Malernee & Ketch's No. 1 School, SW cor. NW, Section 16-6-16w, is spudding. Russell & Sloan, Inc., moved a spudder in for No. 1 Jones, NW cor. NE NW, Section 17-5-14w.

W. C. Adams' No. 1 Hamilton, NW cor. SW, Section 2-6-17w, has been abandoned at 603 feet. J. R. Travis' No. 1 Hobbs, CWL NW SW, Section 7-6-16w, has been abandoned at 503 feet. Johnson McDowell's No. 1 Kello, C SW NE, Section 6-6-15w, is dry and abandoned at 2,707 feet. Russell & Sloan, Inc.'s No. 1 Petty, NE cor. SW SE, Section 14-6-15w, is a dry hole at 500 feet.

Lincoln County

Shaffer Oil & Refining Co. and others' No. 1 Pinkston, NE cor. SW, Section 23-15-6, is dry and abandoned at 4,222 feet.

Logan County

Shell Petroleum Corp. is digging the cellar for No. 6 McCully, NE cor. SW SE, Section 30-19-4w. Marland Oil Co. is erecting the rig for No. 2 Gregg, NW cor. SW NE, Section 16-18-4w, Roxana Pool. Shell Petroleum Corp.'s No. 1-A Rouse "B," NE cor. Section 19-19-4w, has been completed for 13,396,000 feet of gas in Layton sand at 4,590-4,640 feet.

Marshall County

George Bilbo and others' No. 1 Johnson, NE cor. SE NW, Section 14-5s-5, is drilling at 50 feet.

Muskogee County

C. O. Buckles and others' No. 4 Barnett, C NE SE, Section 8-15-15, is an old well cleaning out to deepen from 1,695 feet. E. A. Hutchinson's No. 4 B. Mason, CWL NE NE, Section 31-15-15, is rigging up. E. B. George and others moved rig material to the location for No. 1 Caesar, CWL SW SW, Section 33-14-16.

Grubbs & Young's No. 5 Friday, SW cor. NW, Section 8-15-15, made 140 bbls. from sand at 1,180-1,201 feet. W. J. Metzger's No. 5 Francis, CNL SW SW, Section 1-14-18, has been completed for 30 bbls. in sand at 937-59 feet. Bement Oil Co.'s No. 4 Flowers, CWL SW NE, Section 5-13-16, is dry and abandoned at 1,803 feet. Sioux Oil Co.'s No. 3 Jordan, SE cor. Section 14-13-18, has been abandoned at 787 feet.

Okfuskee County

Abbott and others' No. 1 Taylor, NE cor. NW, Section 18-12-11, is drilling at 900 feet. Josey Oil Co.'s No. 3 Fields, SW cor. NW NW, Section 33-12-11, is rigging up to deepen from 3,030 feet.

Pure Oil Co.'s No. 1 Anderson, NE cor. SE, Section 23-11-10, has been abandoned at 3,315 feet. Atlantic Oil Producing Co.'s No. 3 Robinson, NW cor. SW, Section 12-10-11, made 450 bbls. from sand at 1,513-30 feet.

Okmulgee County

Aiken Oil Co. and others' rig is on the location for No. 3 Sloan, SE cor. NE NW, Section 22-13-14. The Prairie Oil & Gas Co.'s No. 8 Hopping & Kennedy, SW cor. NW NE, Section 22-13-14, is rigging up to deepen. J. W. Winemiller has a machine at the location for No. 1-A Hawkins, SE cor. SW, Section 21-14-11. H. H. Diamond Oil Co. made location for No. 1-A Jones, SE cor. NE, Section 28-13-11. Moffett and others' No. 3 Holmes, CEL NW NE, Section 7-11-12, which is being deepened from 2,090 feet, has a show of oil in sand at 2,220-70 feet. Moffett & Buckles' No. 2 Grayson, CNL NW SE, Section 16-11-12, is drilling at 1,300 feet with a show of gas.

J. A. Swindler's No. 12 Lewis, NW cor. NE SE, Section 20-15-14, is dry and abandoned at 2,341 feet. Winemiller Oil Corp.'s No. 1 Warren, SW cor. NE, Section 13-14-11, has been abandoned at 2,886 feet.

Osage County

The Texas Company is moving a machine in for No. 6, NW cor. SW SE, Section 30-25-8. Winona Oil Co. is building the rig to deepen No. 11, CWL SW, Section 25-24-9. Mid-Co Oil Corp. made location for No. 1, SE cor. NE, Section 17-22-10. Oklahoma Natural Gas Corp. made location for No. 1,674, SW cor. NW, Section 13-21-11. Oklahoma Power & Water Co.'s No. 114, NE cor. NW NW, Section 9-20-10, is spudding. Mid-Continent Petroleum Corp. has the rig on the ground for No. 1, NE cor. SE SW, Section 15-20-10.

Producers & Refiners Corp. and Peters Petroleum Co.'s No. 1, SE cor. NW, Section 11-26-8, has been completed for 1,200 bbls. in Burgess sand at 2,142-62 feet. Marland Production Co. and Gypsy Oil Co.'s No. 1, SW cor. NE, Section 22-24-7, swabbed 168 bbls. from Siliceous lime at 2,902-31 feet. No. 1, SE cor. NW, Section 22-24-7, is pumping 300 bbls. from Siliceous lime at 2,898-2,927 feet. William D. Gray's No. 3, CSL SE, Section 34-24-8, was completed for 2,743 bbls. in Wilcox sand at 2,558-72 feet. Mid-Kansas Oil Co.'s No. 3, SE cor. NE SW, Section 36-28-8, made a 75-bbl. well in sand at 444-60 feet. Oklahoma Natural Gas Corp.'s No. 1,661, NE cor. SW SW, Section 27-21-11, is dry and abandoned at 1,891 feet.

Pawnee County

Edwards and others' No. 1 Byers, SW cor. NW NE, Section 31-21-9, is drilling at 505 feet. Roy Sears and others' No. 1-A Wiggs, NE cor. NW NW, Section 35-20-9, is drilling at 1,700 feet. Henrico Oil Co.'s No. 4 Cotton, SW cor. NW NE, Section 6-20-8, is drilling at 2,565 feet and making 35 bbls. Thompson & Black's No. 1 Lennex, NW cor. SW SW, Section 14-20-9, is making 24 bbls. from sand at 2,603-14 feet.

Payne County

Mulberry Oil Co.'s No. 1 Miller, SE cor. NE SW, Section 27-19-4, Ripley area, is dry and abandoned at 3,772 feet.

Stephens County

Harry Muse and others made location for No. 1 D. Ratliff, SE cor. NW NE, Section 14-1s-4w. Pace and others' No. 1 Medley, SW cor. NW NE, Section 2-2s-8w, is a rig. No. 1 McMasters, NW cor. SE NE, Section 13-2s-8w, is rigging up.

Bunn & Marvin's No. 1 Williamson, NE cor. NW SE, Section 12-1-6w, lost the hole at 1,420 feet and has been plugged. Amerada Petroleum Corp.'s No. 4 Hanson, NW cor. SW, Section 12-1s-4w, has been completed for 50 bbls. in sands at 2,911-3,620 feet. Wirt Franklin Petroleum Corp.'s No. 1 Bell, SE cor. SW SW, Section 13-1s-4w, is making 60 bbls. from sands at 2,795-3,859 feet. No. 2 Bell, NE cor. SW SW, Section 13-1s-4w, made 180 bbls. from sand at 2,813-42 feet.

Tulsa County

E. P. Bailey and others' No. 1-A Unallotted, CNL SW, Section 34-19-11, is dry and abandoned at 2,391 feet.

Wagoner County

McCracken and others' No. 5 Childers, NE cor. SE NE, Section 21-18-17, has been completed for 4,750,000 feet of gas in sand at 794-801 feet.

Hughes County

Champlin Oil & Refining Co. is building the rig for No. 1 M. Long, SW cor. Section 33-9-9.

Pontotoc County

Westheimer & Daube have the rig up for No. 2-A Patterson, NW cor. Section 29-5-8, Allen Pool. Homaokla Oil Co. is building the rig for No. 2 Ritchie, SW cor. NE SE, Section 1-4-7.

Seminole County

Independent Oil & Gas Co. is erecting the rig for No. 5 Lawson, NW cor. SE SE, Section 1-8-5. The cellar has been dug for No. 6 Lawson, NW cor. NE SE, Section 1-8-5, Mission Pool. Sinclair Oil & Gas Co. has dug the cellar for No. 3 Bean, NE cor. NW, Section 11-8-5. Amerada Petroleum Corp. and Burke Greis Oil Co. made location for No. 1 Grounds, SE cor. SW SE, Section 23-9-5. Marland Oil Co. has the cellar dug for No. 4 Maines, NW cor. SE SW, Section 7-8-6. Shell Petroleum Corp. and Marland Oil Co. made location for No. 3 Herndon, SW cor. NW NE, Section 7-8-6.

Shell Petroleum Corp. and Papoose Oil Co. made location for No. 5 Maines, SE cor. NW SW, Section 7-8-6. The location was also made for No. 6 Maines, SW cor. NW SW, Section 7-8-6. No. 7 Maines, NE cor. SW SW, Section 7-8-6,

(Continued on Page 102)

MORE IMPORTANT WILDCAT SHOWINGS ADDED TO WRIGHT POOL, KANSAS

By J. L. Dwyer

It looks as if it were impossible to drill a completely dry hole in central Kansas, and almost every important wildcat well has a showing of oil. The most recent operation to show is E. B. Shawver and others' No. 1 Broeis, NE cor. SW Section 5-26-1e, which found oil in the chat at 3,020 feet. The chat is barely touched, and the well swabbed 95 bbls. in 12 hours. It is now being cleaned out and the owners will run a string of tubing and pump the well.

This well adds another spot to the region which is growing in importance daily. It is located 8 miles east of the Wright Pool, and 4 miles southeast of the Barnsdall Oil Co.'s No. 1 Samuels, in Section 24-25-1e, which is also making some oil from the chat.

It is especially significant that every wildcat well which has been drilled to the north, to the east and to the west of the Wright Pool wells has had some showing of oil. There is little question in the minds of those who have studied the region that some good production will be obtained in the chat, and this is based mainly upon the fact that the wells in the region have encountered such good showings.

Wright Region

A most important piece of news in the Wright region was that the Marland Production Co.'s No. 1 Goodrich, in Section 16-25-1e, stopped flowing and went dead on Sunday of this week. The well had been decreasing slightly in production just previous to stopping its flow and made 1,500 bbls. on Saturday. For the 18 hours ending 1 a.m. Sunday the well produced 900 bbls., and then quit.

The Goodrich well has gone dead before and when production methods were used to revive it the flow resumed, and it is possible that this will occur again.

In the Wright Pool the Mary Jane Oil Co.'s No. 1 Fitch, in the Golden Triangle in the SW Section 6-26-1e, is making 90 bbls. daily with no change in total depth. The Aladdin Oil Co., T. B. Slick and others' No. 1 Smyser, in Section 36-26-1w, is making 580 bbls. daily. To the east of the pool the Barnsdall Oil Co.'s No. 1 Samuels, NE cor. NW Section 24-25-1e, is making 115 bbls. of oil and 45 bbls. of water on the swab. The appearance of water in this well may cause the owners to drill it down to the Wright horizon.

Butler County

Empire Oil & Refining Co. made location for No. 6 Sharrock, NW cor. SE SW, Section 27-27-5. Air Capitol Oil & Gas Co.'s No. 4 Doughry, C NE SW, Section 5-27-6, is drilling at 500 feet. Connell and the Prairie Oil & Gas Co. moved rig timbers to the location for No. 1 Sherman, NE cor. SW, Section 17-26-6.

Swartz and others' No. 1 Randall, NW cor. NE NW, Section 22-24-4, is dry and abandoned at 2,653 feet. Empire Oil & Refining Co.'s No. 6 Willits, SE cor. SW, Section 22-27-5, made 250 bbls. from sand at 2,729-72 feet. No. 7 Willits, NE cor. NW, Section 27-27-5, was completed for 200 bbls. in sand at 2,731-60 feet. No. 5 Hutchinson "B," NW cor. NE, Section 27-27-5, is making 350 bbls. from sand at 2,727-60 feet. Garden and others' No. 3 Sluss "B," C NE NW, Section 6-27-6, made 240 bbls. from sand at 2,721-53 feet.

Cowley County

Kentucky Nitrogen & Oxygen Co.'s No. 5 Dobson, SW cor. NE, Section 24-33-6, is drilling at 300 feet. The machine has been moved out for No. 1 Barnhart, NW cor. SW SE, Section 7-33-7. No. 1 Sillman, NE cor. SW SW NE, Section 13-34-6, is drilling at 250 feet.

Lewis Producing Co.'s No. 1 Conrod, NE cor. NW SW, Section 30-31-6, is dry

(Continued on Page 201)

WILDCAT OPERATIONS IN KANSAS

Company, farm and location—	Remarks:
BARBER COUNTY	
Barbara Oil Co.'s No. 1 Blunk, C NE NW Sec. 20-34-13w	2,000,000 ft. gas 4,755 ft.; fishing tools.
Rolland et al's No. 1 Pickens, NE cor. NW NE Sec. 27-30-14w	Shut down 4,223 ft.
BARTON COUNTY	
Everett & Wiley's No. 1 Ward, NW cor. SW Sec. 12-20-13w	Shut down 3,948 ft.
Mid-West Exploration Co.'s No. 1 Karst, SW cor. SW Sec. 11-16-15w	Drlg. 3,100 ft.
BUTLER COUNTY	
LaRobb et al's No. 1 Bronsenger, NE cor. SW Sec. 24-27-3	Rig.
Swartz et al's No. 2 Randall, NW cor. NE NW Sec. 22 24-4	Shut down 2,605 ft.
CHASE COUNTY	
Griener & Fowler's No. 1 Carson, NE cor. NE Sec. 9-21-7	Shut down 3,162 ft.
COWLEY COUNTY	
Roth & Faurot's No. 1 Ridding, SE cor. NW Sec. 31-32-6	Drlg. 2,715 ft.
Shell Pet. Corp.'s No. 1 Galley, NE cor. NW SW Sec. 18-35-3	Drlg. 2,235 ft.
Pyle & Sutter's No. 1 Lindstrom, SW cor. NE Sec. 9-35-4	Show gas 2,218 ft.
Empire-Marland-Twin States' No. 1 Feaster, NW cor. NE Sec. 36-32-5	Pump. 35 bbls. oil and 10 bbls. wtr. daily from 3,165 ft.
Crow & White's No. 1 Powers, C NW NE Sec. 9-32-5	Sand 714-734 ft.; 1,000,000 ft. gas.
J. B. Markey's No. 1 Tatum, SE cor. SW Sec. 11-31-6	Shut down 520 ft.
Wakefield & Osborne's No. 1 Osborne, NW cor. NE Sec. 18-30-5	Rig.
ELLIS COUNTY	
Rush Oil Co.'s No. 1 Gatewood, NW cor. NW Sec. 4-15-20w	Shut down 1,100 ft.
Transcontinental Oil Co.'s No. 1 Boetcher, NW cor. SE SW Sec. 21-13-19w	Drlg. 3,862 ft.
Finney & Weiner's No. 1 Freeman, SE cor. SW Sec. 24-15-20w	Spudded and shut down.
Labette Oil Co.'s No. 1 Urban, NE cor. NW SW Sec. 19-15-16w	H.F.W. 3,618 ft.
Atlantic Oil Prod. Co.-D. B. Mason's No. 1 Gorham estate, C SE SE Sec. 35-15-16w	S.D. 2,462 ft.
Derby Oil Co.-Empire Oil & Ref. Co.'s No. 1 Krause, NW cor. SW SW Sec. 17-14-19w	Cementing core 3,829 ft.
Phillips Pet. Co.'s No. 1 Brull, C NW Sec. 34-14-17w	Drlg. 2,100 ft.
Moncrief et al's No. 1 Johnson, SW cor. NE Sec. 9-13-19w	Rig.
John Brown's No. 1 Gestner, SE cor. SW NE Sec. 13-13-18w	Drlg. 1,425 ft.
Empire Oil & Ref. Co.'s No. 1 Wann, NE cor. NE Sec. 31-12-19w	Underreaming 3,515 ft.
Marland Oil Co.'s No. 1 Vine, SW cor. SW SE Sec. 27-11-19w	Drlg. 3,825 ft.
Davis & Hazlett's No. 1 Wieland, NE cor. NE Sec. 1-13-16w	Drlg. 1,260 ft.
EDWARDS COUNTY	
Amerada & Wilcox's No. 1 Teansil, C NW SW Sec. 32-25-19w	Drlg. 4,071 ft.
British American Oil Co.'s No. 1 McCarty, NE cor. NW Sec. 31-25-17w	Spudded and shut down.
GEARY COUNTY	
Wright et al's No. 1 Younker, NW cor. NE Sec. 17-11-5	Shut down 1,200 ft.
GRAHAM COUNTY	
Gulf Coast Oil Co.'s No. 1 Johnson, C S half Sec. 27-8-25w	Shut down 2,450 ft.

(Continued on Page 208)

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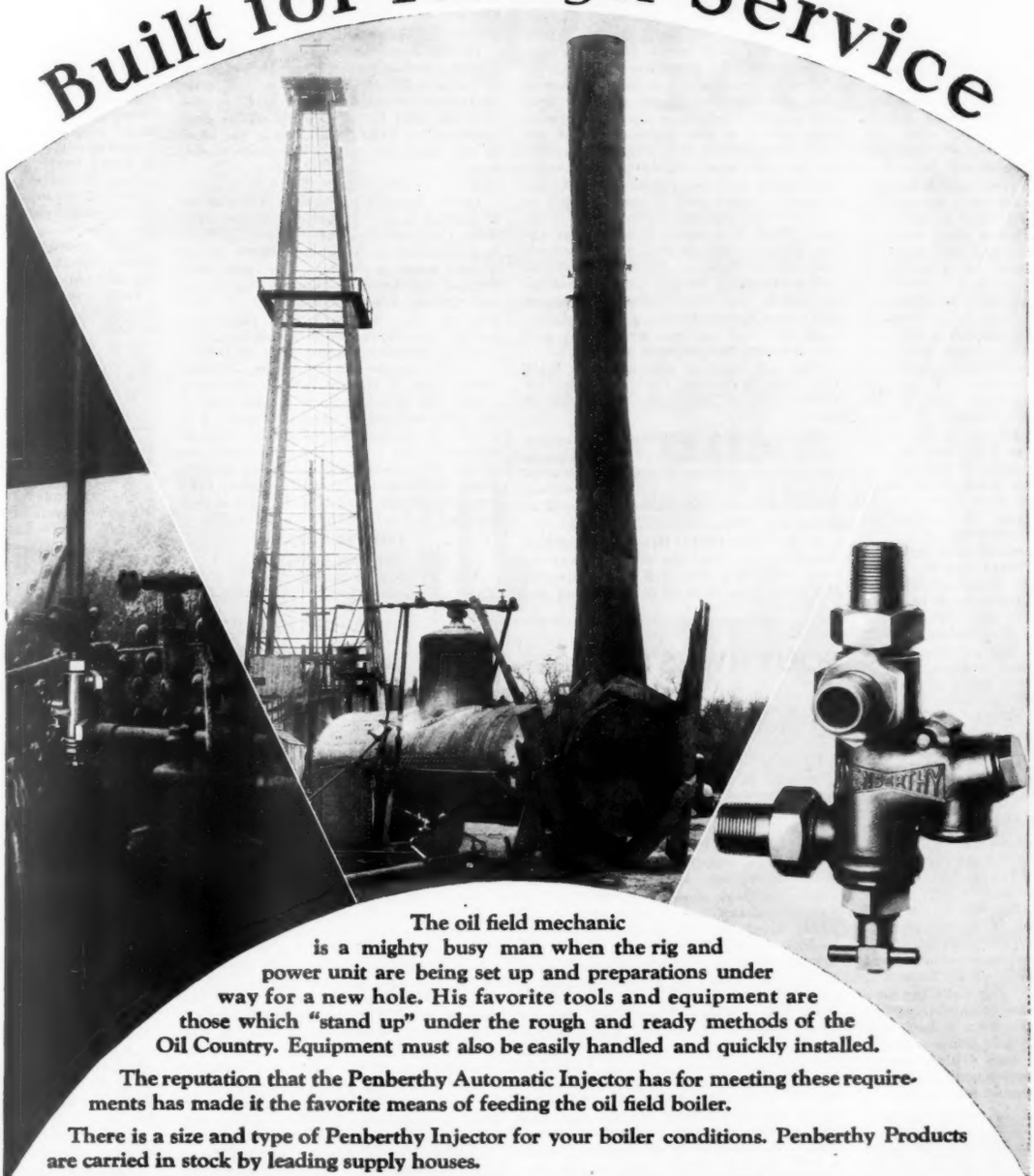

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Refugio Tests Look Like Oil Wells

Laredo Field Has Several More or Less Important Completions. Austin Chalk Tests in Luling Not Looking So Good

By B. D. Stevenson
Staff Correspondent, Southwest Texas Fields

SAN ANTONIO, Tex. Jan. 28.—Two tests in the north end of the Refugio Field in Refugio County, in the 3,700-foot sand were being brought in late in the week and each looked like an oil well, and in the Laredo Field there were a bunch of completions all more or less important, while in the Luling district the three Austin chalk wells were not looking so good as to two of them and the third waiting to be tested.

The two north end tests in the Refugio Field were reported as being brought in the week before. The gas pressure is very high in the 3,700-foot sand, running as high as 1,500 pounds, and wells in that sand are brought in with every precaution. Tubing is run before the well is bailed down and the wells brought in through tubing. The No. 1 Holmes Heard of the Union Exploration Co. had some trouble with the liner but was bailing with considerable mud yet in the hole as this was written. It is the farthest north in the field. The Union Exploration Co. and William F. Morgan's No. 2 Leslie Adkins in the same sand at total depth of 3,701 feet started to bail Thursday night. It had tubing set and the well made a couple of heads of oil Thursday with over 2,000 feet of fluid still in the hole. It was bailed again Friday, the oil showing up a little better. It may be several days before it is completed. The Texas Gas Co.'s No. 1 Holmes Heard, the discovery oil well in the north end of the field is the only other oil well at that end. The Union Exploration Co.'s No. 1 Holmes Heard is closed in till the gas pressure builds up and is then allowed to blow through the tubing. It did not seem to have as much gas as some of the other wells in that sand but will probably make a good well. Some new tests are starting in that field, the Houston Oil Co. having made a location in the bed of Blanco Creek at the point where the creek is farthest to the east.

Laredo Field

Simms Oil Co. has completed No. 3 Dinn in what is known as the Simms gas pool in Duval County north of the Cole gas pool, the well being in the northeast corner of the Simms lease off the farthest east part of Survey 62, and is a 40,000,000-foot gas well at 1,769 feet. It tested a small amount of gas at 1,754-65 feet but deepened to 1,769 feet increased in volume. The discovery well drilled by Simms and completed at the same depth is a little over a half mile southwest and is the only other producer in that section and was drilled two or three years ago. Development of the gas spot waited for a demand for the gas.

Another feature of the proven territory in the Laredo district is the Cole Petroleum Co.'s No. 17 Benavides on the south edge of the little pool discovered by the Cintex Oil Co. in 1926. It made some oil when first brought in but later made gas. Now it is reported flowing 100 bbls. of oil. It is in the north part of the Cole gas field in Duval County.

Albercas Pool

In the Albercas Pool Sun Oil Co.'s No. A-13 Yeager-Strohman is a 250-bbl. well with sand at 2,153-62 feet and it is the farthest south location on the company's lease. Edward St. Albans is down 800 feet on his No. 4 Holbien which is one location south of Sun company's No. A-13 and Rycade Oil Corp.'s No. 9. A. W. Majors' No. 1 Holbien, 300 feet west of St. Albans, is a location. These wells are only about a half mile from the northernmost wells of the Henne, Winch & Fariss Pool and it looks more and more as though these pools would merge.

Cosner & Danmier's No. 1 Benavides in Block 6, Survey 11, Zapata County, 2 miles northwest of the old Mirando Valley Pool, is a 6,000,000-foot gas well at 1,527 feet with sand from 1,520 feet. It is in the area where Gleason a few months ago got a small gas well showing a little oil and this well has an odor of oil. The two wells are about a half mile apart. There is a dry hole between them which it was claimed should not have been dry and this seems to disprove the dry hole which failed to produce for mechanical reasons. It has not yet developed to good pool proportions but is an area that will be watched with interest. There is a gap of 5 miles from the old Mirando Valley Pool, the discovery pool of the field on the south and the Bruni extension of the Aviator Pool on the north, and this is about the biggest gap in the Laredo Field. Andrews Petroleum Co. has one gas well about half way between, drilled some years ago.

Cosner & Danmier are moving to No. 2 Benavides in the east corner of Block 14, Survey 11, a half mile southeast of No. 1.

Morris Drilling Co.'s No. 1 Benavides, in the southeast corner of Webb County and a little west of the O'Hern-Seacord Pool, went dead after showing some oil. Tubing was run and it has come back as a dry gas well.

In the Schoolfield-O'Byrne Pool the best completion of three for the week was the Onyx Oil Co.'s No. 3 Krauter, flowing 150 bbls. from sand at 2,337-47 feet and Sun company's No. 2 North came next with 108 bbls. No. 3 Krauter is the farthest south of any oil well in the field and No. 2 Norton is an inside location. Magnolia got a 25-bbl. well in its No. B-3 Hahl at 2,313-33 feet and is moving 300 feet east for No. 4.

Agua Dulce Pool

In the Auga Dulce Pool a new sand is being tested in the Agua Dulce Oil & Gas Co.'s No. 1 Sanders, a half mile southwest of the discovery well of the field, at 1,971 feet to the top of the sand compared to 2,013 to the top of the sand in the discovery well. The sand is different.

Joe Bruner Field

In the Joe Bruner or Salt Flats Field at Luling it has been the quietest week since the field came in. Lutex Oil, Inc. is reworking to plug its No. 3 Davis which made a water well and was plugged but failed to shut out the water and Golden West Oil Co.'s No. 2 Wilson, an old well which went largely to water, some think due to water from No. 3 Davis, is being plugged back 10 feet to try and solve the water problem. Golden West's No. 2 Malone late in the week looked like it would make a good well in the Edwards and is important since it is a little to the east of production. Tips de Armand's No. 1 Carter, at the north end of the field, that blew out a gas well at about 1,100 feet and was lost has been properly plugged and abandoned and permit had to start another 75 feet away.

COMPLETIONS

Bastrop County

The Texas Company's No. 1 A. M. Yoast, A. Garcia Survey, south offset to discovery well, plugged back from 1,2[illegible] feet to 1,445 feet, and is a 100-bbl. w[illegible]

Bexar County

Gas Ridge Development Co.'s No. [illegible] Kennon, Rodriguez Survey No. 4 work[illegible] over, has been brought back for 1,0[illegible] 000 feet daily.

Caldwell County

Humble Oil & Refining Co.'s No. [illegible] William Smith, A. Floyd Survey, [illegible] 2,700 feet is making 100 bbls.

Humble Oil & Refining Co.'s No. [illegible] Floyd Tiller has been completed, es[illegible] mated good for 50 bbls.

Gulf Production Co.'s No. 1 Connal[illegible] A. Floyd Survey, completed at 2,734 fe[illegible] making 300 bbls.

Gulf Production Co.'s No. 3 W. [illegible] Smith, completed at 2,702 feet is good [illegible] 300 bbls.

Gulf Production Co.'s No. 4 W. [illegible] Smith, completed at 2,706 feet, is ma[illegible] ing 300 bbls.

Gulf Production Co.'s No. 6 W. [illegible] Smith was completed at 2,690 feet f[illegible] 50 bbls.

J. S. Abercrombie Oil Co.'s No. 2 Lil[illegible] Moses, A. Floyd Survey, was complete[illegible] at 2,733 feet a 50-bbl. well.

M. K. Towns' No. 2 W. W. Hickma[illegible] Gerren Hinds Survey, brought in at 2,7[illegible] feet is good for 50 bbls.

M. K. Towns' No. 3 W. W. Hickma[illegible] A. Floyd Survey, completed at 2,700 fe[illegible] is making 50 bbls.

Shell Petroleum Corp.'s No. 1 J. [illegible] Tiller was completed with initial flow [illegible] the rate of 400 bbls. daily.

Duval County

Onyx Oil Co.'s No. 3 Krauter, Surve[illegible] 250, Block 20, Schoolfield-O'Byrne Fiel[illegible] completed at 2,354 feet, is flowing 15[illegible] bbls.

Magnolia Petroleum Co.'s No. B-[illegible] Hahl, Survey 61, was completed at 2,33[illegible] feet for 25 bbls.

Sun Oil Co.'s No. 2 W. P. Norton, Survey 250, Block 19, was completed at 2,353 feet pumping 108 bbls.

Guadalupe County

Magnolia Petroleum Co.'s No. B-2 Mc Kean, H. Cottle Survey, Luling Field, was completed at 2,166 feet for 5 bbls.

Refugio County

Houston Gulf Gas Co.'s No. 2 Shelly, Refugio town tracts, was completed at 3,660 feet for 50,000,000 feet daily.

Webb County

Simms Oil Co.'s No. 3 Dinn, Survey 62, Simms Field, was completed at 1,769 feet making 40,000,000 feet of gas.

Sun Oil Co.'s No. A-13 Yeager-Strohman, Share 5, Albercas Field, was completed at 2,162 feet for 250 bbls.

Zapata County

Cosner-Danmier's No. 1 Benavides, Survey 11, Block 6, in the Andrews Field, was completed at 1,530 feet for 20,000,000 feet of gas 540 pounds rock pressure.

O. W. Killam's No. 11 Cuellar, Jennings Field, was completed at 1,468 feet for 50 bbls.

ABANDONED TESTS

Bexar County

Amelia Balgart's No. 1 Adams, Cortari Survey No. 5, location abandoned.

E. G. Potter's No. 1 Watson, B. Martinez Survey, location abandoned.

George F. Hinton, location 2 miles south of Gas Ridge, same as Indian Creek Oil & Gas Co.'s No. 1 Wolfsohl.

Caldwell County

Golden West Oil Co.'s No. 1 Cook, A. Floyd Survey, abandoned at 2,763 feet swabbing water and little oil.

Refugio County

William F. Morgan's No. 2 James Agnes Lambert, Tract 8, at 3,799 feet is dry and abandoned.

Medina County

Ferguson and others' No. 2 Odom, H.

(Continued on Page 225)

SOUTHWEST TEXAS WILDCAT SHOWS LEAD TO ACTIVITY IN LEASING

By B. D. Stevenson

SAN ANTONIO, Tex., Jan. 28.—Showings of oil in wildcat tests here and there and continued reports of increasing activity in blocking leases across the north part of Gonzales County, and northeast into Fayette and southwest into Wilson, constituted the bulk of the news of wildcat interest in outhwest Texas the past week. United North & South company had a little showing of oil at 3,462 feet in its No. 1 Nehr in Medina County, south of Hondo, and twisted off four fourbles of drill stem at the same time. It sidetracked and is nearly back to the old depth. The S. M. Oil Co.'s (Walker Brothers) No. 1 Lynch, east of Lockhart, which had a showing of oil in Austin chalk at 1,832 feet failed to produce and J. J. Christie's No. 1 Taylor Thomas which had a showing of oil in the Austin at 1,053 feet bailed and got a little oil, did not look like a well and will probably be deepened. The well is in Guadalupe County a little west of Staples and on the general line that a fault line would take from the Roxana-Larremore Pool to the southwest. Miller Brothers' well in Guadalupe, 4 miles south of Seguin, which had a showing of oil in the Austin chalk at 1,987 feet, had not been tested late last week. The main interest in these Austin chalk showings which formerly were given scant attention is due to the Austin chalk production in the first wells in the Joe Bruner Pool, and the chance that someone else may somewhere duplicate it.

Several blocks of leases are being got up in northern Gonzales County, due largely to Empire Gas & Fuel Co.'s No. 1 Norwood, 8 miles southeast of the Luling Field, producing at 3,775 feet at the contact of the Austin chalk and Taylor marl. Formations from the Roxana-Larremore Pool in northwestern Caldwell County to the Joe Bruner Field dip normally at the rate of about 100 feet to the mile and from the Bruner Field to Empire's No. 1 Norwood at the rate of about 300 feet to the mile and for this reason this territory was not given much attention till the Empire well came in. Now it is being leased and a number of wildcat tests are due to start. Cranfill & Reynolds are down about 3,000 feet on No. 1 Webb, 500 feet south of Empire Gas & Fuel Co.'s No. 1 Norwood and Empire Gas & Fuel is rigging up a river bed test in the San Marcos River bed a little farther to the southwest.

Outside of the actual wildcat tests drilling or blocks being leased to drill there is an unusual lot of activity in Southwest Texas at this time. The hotels are being filled up with oil men, both in the cities and in the little towns. They are oil men from other states and districts and are looking around and getting a line on the situation. Not a great deal of this visitation by outside oil men has been translated yet into concrete action in the way of closing deals but the common talk is that Southwest Texas is filling up with men and it all presages more activity.

Branyon Area

In the Branyon area, 4 miles south of Lockhart in Caldwell County, where The Texas Company and Doctor Bute drilled No. 2 Branyon and got a producer and where a dozen dry holes were later

(Continued on Page 226)

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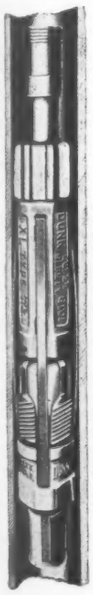
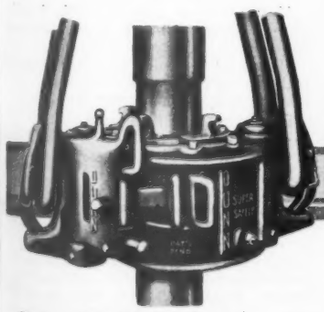


The Dunn Super-Safety Tubing Stop insures the safety of this long heavy string.

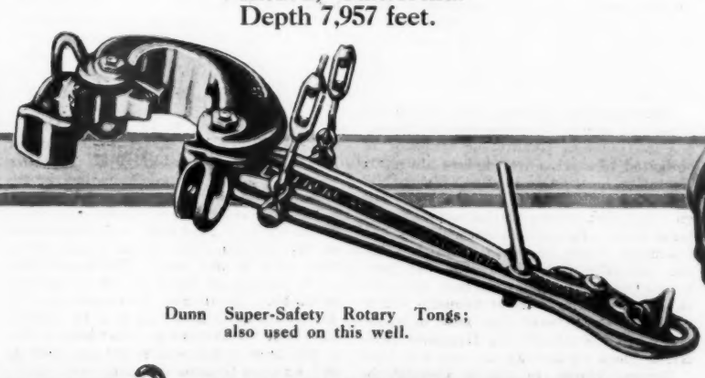
Dunn Super-Safety "Tubing Flyer" Tubing Elevators were used to set the 3-inch upset tubing.

Dunn Super-Safety "Snapon" Tubing Tongs were used to make up the string.

Views at the Associated Oil Company's Lloyd No. 100, Ventura, California. Depth 7,957 feet.



Dunn Super-Safety Automatic Slip-Grip Casing Elevator. (Side-Door Type.)



Dunn Super-Safety Rotary Tongs; also used on this well.

Dunn Super-Safety Elevator, Regular Side-Door Type.

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Renewed Activity in Richland Parish

Letting Down of Bars on Carbon Making Opens Field to Market. State Still Can Limit Pull on Wells

By D. H. Bancroft
Staff Correspondent, Louisiana-Arkansas

SHREVEPORT, La., Jan. 26.—Organization of a company to manufacture carbon from Richland Parish gas and the appearance on the scene of Carbon Gas Co. with four locations, one of which has rig up, seems to presage a renewal of activity in that part of the Shreveport division. It has been decidedly quiet for the last several months. Richland Parish acreage also figured in two of the largest deals that have come to light during the last few weeks. J. H. Mann of Monroe and E. M. Jones of El Dorado had approximately 1,500 acres of proven, semiproven and wildcat area in Richland and this week sold it to the Electric Bond & Share Co. (Industrial Gas Co.) for $100,000, but details of the trade were lacking. At the same time, W. C. Feazel sold the 3,200 acres he had scattered through proven and wildcat territory to the Southern Carbon Co. for $370,000 on terms the details of which likewise are lacking except that of the price paid, Feazel is to spend up to $20,000 in killing the crater well on his McCoy lease in the heart of the field, the State Conservation Department to have supervision of the job.

It is planned to set a couple of joints of 20-inch over the broken casing and, with the gas escaping through laterals from surface fittings on this 20-inch, to snub in tubing, cementing around the surface string and up the 20-inch and also pumping in cement through the tubing to kill the well at the bottom. This crater has been blowing around 40,000,000 feet of gas into the air for the past three or four months but apparently has had small effect on the immediate vicinity as several wells of big open flow have been completed near by on which rock pressures were normal. Meanwhile the first crater in the field, the old No. 1 Thompson of the Natural Gas & Fuel Co. continues to blow unabated, though offset wells have been pulling a large part of the gas Richland is supplying to the three pipe lines out of the field.

R. L. Gay, setting 8¼-inch casing at 2,080 feet on No. 1 Sabine Lumber Co. in Section 13-7-14, Sabine Parish, to test 8 feet of limy sand at 2,133 feet, will direct attention to the forthcoming test for the next week or so. His No. 1 Bowman-Hicks, completed in November making 50 bbls. from 2,130 feet, continues flowing at a slightly better rate. A refinery run of a sample of the oil by Standard Oil Co. of Louisana showed: Gravity, 40.3; flash, 90 degrees Fahrenheit; viscosity at 100 degrees Fahrenheit; C.T., 25; b.s., 0.4 per cent; water, none; sulphur determination, 0.106 per cent; U. S. Motor gasoline, 24.99 per cent; export "gas," 33.79; gas oil, 18.12; paraffin distillate, 19.15; acid oil, 1.66; coke, 0.54; refinery losses, 1.84.

Carbon Black Decision

Decision of the United States Supreme Court to the effect that the State is without authority to prohibit the use of natural gas for carbon making, which was formally filed of record a week or so ago, has let down the bars so far as Richland Parish is concerned and opened that field to a market the advantages of which are, while immediately pleasurable and profitable to the royalty and land owners, of doubtful value in the long run. Immediately on the heels of announcement of the decision came news of organization of the Richland Carbon Co. with plans for a plant near Archibald, and this week there was news of another plant to be built at or near Mangham, about 10 miles southeast of the field, by Oliver & Masters, who have some production and want to find a market for it as do various other individual operators.

The bars are down and there is no telling where this avenue of consumption of Richland's more than 2,000,000,000 feet per day, open flow, will stop. Of this capacity 25 per cent or 500,000,000 feet is available but Magnolia Gas Co., Arkansas Natural Gas Co. and Dixie-Gulf Gas Co. are pulling on this to the extent of 100,000,000 feet or more and the line to St. Louis will take another hundred million, the proposed line to Birmingham, Atlanta and Chattanooga will take another hundred million; the Interstate line to New Orleans eventually will draw on the field and two or three smaller systems will also be dependent upon Richland for all or part of their supply. It will be interesting to watch developments in the efforts of the State to restrict consumption of gas for carbon making. Just at present the State does not appear to be very much concerned over the Supreme Court decision, as it still has authority to limit the pull on any one well.

Week's Completions

There wasn't much to talk about in the week's completions. Marine Oil Co.'s No. 2 Sample in the NW cor. NE NW Section 7-17-13, of the eastern extension of Champagnolle was the best well of the eight completed. An inside well offsetting producers south and east, it made 700 bbls. initial from 13 feet of sand, total depth 3,051 feet. Rushing and others' No. 7 Gregory in Section 11-17-15, pumped 425 bbls. of fluid, 75 per cent water, from 16 feet of sand, total depth 3,214 feet. Skelly Oil Co. abandoned No. 1 J. M. Gregory in Section 15-17-14, at 3,295 feet. It had been a good gas well—50,000,000 feet—with a spray of oil at 3,051 feet. Panola County, Texas, afforded S. H. Gardner and others a 1,000,000-foot gasser in No. 1 Lawless in the J. L. Matthews Survey, in the deep stuff at 2,804 feet.

Magnolia Petroleum Co.'s No. 18 Robertshaw, Section 24-21-15, Pine Island district of Caddo, started out with 15 bbls. of oil and 120 bbls of salt water from 3,790 feet when equipped with gas lift. G. E. Jordan's No. 1 Wall, a source of excitement last month when it made a big show of gas at 3,274 feet, was finally completed as a 500,000-foot gasser after plugging back to 2,300 feet. At that, it is some deeper than the average run of Monroe district producers. The location is in Section 12-18-3, Ouachita Parish, 3 miles north of Monroe and on the western edge of the southern end of the field.

Interstate Natural Gas Co.'s No. 1 Hodges, Section 4-19-3, Union Parish, made 3,500,000 feet of gas at 2,185 feet. Northwest Louisiana Gas Co. abandoned No. 9 Pine Woods, Section 34-23-11, Sarepta district of Webster Parish, as a salt water hole after coring sand showing water at 3,100 feet, about 300 feet below where three or four wells in that vicinity have been completed as fairly good pumpers.

Production Stationary

Production from the district was practically stationary, daily average runs for the week totalling 114,453 bbls., being 82 bbls. less than last week. Louisiana runs gained 48 bbls., averaging 36,330, but declines in Arkansas turned the advantage into a loss of 82 bbls., with a decline of 130 bbls., runs from these pools totalling 78,120 bbls. Champagnolle shipped 10,945 bbls. per day, an increase of 360 over last week, but a drop of 300 in Smackover heavy and 120 from Nevada County plus small declines from other districts wiped out the advantage. Runs from the several pools for the week were:

Louisiana

	Bbls.
Caddo light	9,058
Caddo heavy	2,825
Homer	4,960
Haynesville	5,530
DeSoto-Red River	4,070
Elm Grove	572
Bellevue	750
Cotton Valley	3,245
Urania	5,736
Pleasant Hill	746
Total	36,332

Arkansas

El Dorado	4,886
Smackover, light	6,875
Smackover, heavy	51,460
Stephens	1,900
Nevada County	1,300
Lisbon	1,500
Champagnolle	10,945
Bradley	100
Total	78,120
Both states	114,453
Last week	114,535
Decrease	82

SEVERAL WILDCAT TESTS PLANNED IN NORTH LOUISIANA AND ARKANSAS

By D. H. Bancroft

SHREVEPORT, La., Jan. 26.—Several more wildcats to go 3,000 to 3,500 feet are in prospect as the result of blocking activities in both north Louisiana and south Arkansas during the past two weeks or so, and Mississippi—in the vicinity of Jackson—seems to have come into a great vogue lately with major companies and individuals alike.

In addition to the large holdings it already has in Bradley County, Ohio Oil Co. has optioned 4,000 acres northwest of the block on which its No. 2 Southern Lumber Co. in Section 19-16-9 is located, and has tentative location in Section 34-15-10 for the next test. Flaucher and others blocked 1,500 acres in Township 15-17, Ouachita County, northwest of McDonald Brothers' land on which No. 1 Wilson showed for heavy oil production at around 2,300 feet, and have location in Section 7-15-17 for No. 1 Buck, a 3,500-foot test.

Louisiana Oil Refining Corp. has 3,000 acres just southeast of the town of Stephens in Ouachita County on which it is obligated to start a well before March 1. Tentative location is in the NE cor. NE NE, Section 22-15-19, and the well will go 5,000 feet unless production is found beforehand. Magnolia Petroleum Co. has assembled 3,000 acres in Township 16-25, Lafayette County on five-year commercial leases and may or may not drill it. It is in the area of Humble Oil & Refining Co.'s fault line play of three years ago and adjoins the Humble's Lewisville block on the west.

Several blocks in Union County, in the western, southwestern and southeastern parts of the county, have been completed during the past few days the leases on most of which call for a well to be started in the near future. Peter Powell and others of El Dorado have assembled 3,000 acres centering around Section 22-16-18 in the northwest corner of the county and turned it to the DuPont interests who will drill a 3,500-foot test.

Arkansas Drilling Co. plans to start a well within the next 10 days or two weeks on a 1,000-acre lease assembled by Griffin Brothers of El Dorado, centering around Sections 10 and 11-17-18, a short distance south of the DuPont block in the Mount Holly district. C. E. Murdock, El Dorado operator, is reported on a deal with Bell and others to take over their acreage and the well they started a couple of weeks ago on the Terrall land in Section 27-18-14, south of El Dorado East Side production. The well set 10-inch at 185 feet and shut down at 775. If Murdock takes it over he probably will make a 3,500-foot test of it.

Southwest of El Dorado

J. W. Olvey has taken 2,000 acres in the center of Township 19-17, 12 miles southwest of El Dorado, and has tentative location in Section 28-19-17 for a 3,500-foot hole. Three miles southeast of his block, J. H. Felker and others, also of El Dorado, have 2,000 acres which they plan to test with a 3,500-foot hole to be located in the NW SE of Section 30-19-16. Sweatman & George of El Dorado, will drill in the SW of Section 11-18-12, 8 miles east of what looked like, a couple of years ago, a big gas field in the Lawson-Urbana district.

A. P. Smith and the McDonald Brothers got up 700 acres scattered in Town-

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NORTH LOUISIANA

Bossier Parish

Elm Grove—Palmer Corp.'s No. 12-B Hodges, Section 25-16-12, cemented 6-inch at 1,874 feet.

Caddo Parish

Greenwood—Loraine Syndicate is drilling No. 1-D Bryson, Section 18-17-16, at 1,620 feet.

Oil City—W. D. Chew's No. 8 fee, Section 33-21-16, is drilling at 950 feet. C. G. Gibbins' No. 1 Gibbins, Section 15-21-16, is shut down for orders, total depth 2,562 feet. Magnolia Petroleum Co. got derrick up for No. 1 Doan-Thigpen in Section 6-20-15. Shreveport Oil Corp. has rig up for No. 1 Cheshire, 1,020 feet south and 825 feet east NW cor. NE Section 32-21-15, and tested salt water with a show of oil at 2,300 feet on No. 1 Guy, in the same section and shut down for orders. Simplex Oil Co.'s No. 7 Youree-Randolph, Section 13-20-15, set 10-inch at 100 feet.

Pine Island—Dixie Oil Co.'s No. 3-B Wells, Section 21-21-15, is waiting on standard rig to pump with 200 feet of oil in the hole, total depth 1,745 feet. Thomason and others' No. 7 Muslow, Section 31-21-15, tested dry at 2,160 feet and is coring at 2,200 feet.

Claiborne Parish

Homer—Onkes and others' No. 1 Richardson, Section 19-21-7, is shut down at 700 feet.

Haynesville—Smitherman & McDonald-Gulf Refining Co.'s No. 1 Miller, Section 17-23-8, is shut down at 4,275 feet.

LaSalle Parish

Urania—Ayers Brothers are coring No. 6 Tremont, Section 30-10-2e, total depth 1,757 feet.

Little Creek—H. L. Hunt cemented 8-inch at 1,283 feet on No. 5 Urania, Section 2-9-1e.

Monroe District

Morehouse Parish—Amalgamated Co. cemented 8-inch at 839 feet on No. 3 Fairly, Section 53-20-4, total depth 870 feet. Natural Gas Producing Co.'s No. 22 Crossett, Section 35-21-4, cemented 6-inch at 2,110 feet; No. 14 Tensas, Section 4-22-4, has rig up to drill. Southern Carbon Co. cemented 8-inch at 793 feet on No. 52 fee (formerly second hole on No. 51 fee), Section 15-20-4, and is drill-

(Continued on Page 229)

Pierce Junction Has Week's Best Well

Semiwildcat Tests 33 Gravity. Links Productive Pool With That on Older East Side Flank of Dome

By Neil Williams
Staff Correspondent, Gulf Coast Fields

HOUSTON, Tex., Jan. 28.—The general reduction in Grade B crudes Saturday was the most important development from a production and field standpoint in the Gulf Coast the past week. The reduction, the first general change since last March, climaxed a week in which the daily average production of coastal fields increased 6,480 bbls. to a total of 145,630 bbls., the highest figure since June, 1927. It was in that month that the daily production dropped off to below 140,000 bbls. and then remained under that mark until the past week with few exceptions.

The reduction of 10 cents a barrel on all gravities will be felt principally in all the newer coastal fields and by the deeper sand pools opened in the past few years at most of the old producing domes. The bulk of the new production brought in on the Gulf Coast in the past few years has been Grade B, whose total output now substantially exceeds that of Grade A oil, the original coastal lubricating stock.

Weakening of the Grade B crude situation on the Gulf was emphasized earlier in the week by general cuts in Mid-Continent crudes which compete to a large extent with the coastal B grade crude, the latter also possessing the lighter ends and gas oil and fuel oil cuts. Grade A crude, however, which has been declining in production with very little new production being brought in and which is in demand for its lubricating stock, is exceedingly tight.

Increases in Output

Substantial increases in output were made by a number of coastal fields during the week, among which were Big Creek, DeWalt, Pierce Junction and Spindletop. The addition of the Fannette Dome to the list for 1,400 bbls. daily, together with the holding up of Southern Louisiana fields was responsible for the 6,480-bbl. gain in daily average production.

An increase in output also was indicated in Southwest Texas fields, which are cousins of the Gulf coastal fields. However, the gain was largely attributed to the new Salt Flat (Bruner) which has risen to front rank importance almost overnight.

Daily average production by fields, both in the Gulf Coast and Southwest Texas, for the week ending January 26 was:

GULF COAST

Texas	
Allen Dome	12
Barbers Hill	2,200
Batson	1,319
Big Creek	5,641
Blue Ridge	4,860
Brenham	150
Boling	2,356
Damon Mound	650
DeWalt	7,896
Fannette	1,400
Hay Hill*	
Goose Creek	6,724
High Island	1,161
Hull	10,378
Humble	5,419
Jasper	18
Markham	440
Nash Dome	640
North Dayton	510
Orange	3,170
Orchard	0
Pierce Junction	12,017
Raccoon Bend	1,586
Saratoga	986
Sour Lake	2,931
South Liberty-South Dayton	8,815
Spindletop	34,641
West Columbia	6,986
Total this week	122,906
Total last week	117,002
Increase	5,904

South Louisiana	
Anse La Butte	45
Bayou Bouillon	894
Edgerly	866
Evangeline	832
Blackberry	6,172
Lockport	4,252
Sorrento	1,002
Starks	754
Sulphur	3,000
Sweet Lake	775
Vinton	4,107
Welsh	30
Total this week	22,729
Total last week	22,148
Increase	581
Total Gulf Coast	145,635
Total last week	139,150
Increase	6,485

Southwest Texas	
Dale	592
Gonzales	175
Kingsville	290
Luling*	29,293
Lytton Springs	1,110
Refugio	886
Somerset	1,915
Mirando	13,907
Medina County	30
McMullen	39
Total this week	48,237
Total last week	45,971
Increase	2,266

*Includes: Bruner, 14,725; Caldwell, 8,516; Guadalupe, 4,163; Larremore, 256; Yoast, 1,633.

The increase in production was due to flush production of late the preceding week and not to that of the past week, as very few new wells of any size have been completed in the past few days. The largest had an initial production of only 1,250 bbls. daily, this being T. G. Shaw-Texas Exploration Co.'s No. 3-E Fitzsimmons at Pierce Junction. This well, a semiwildcat on the northeast flank of the dome, came in Friday afternoon at a depth of 4,425 feet and flowing through a three-eighths-inch choke. The oil tested 33 gravity at the unusually low temperature of 56 degrees.

This well is of some significance, being another step in linking the productive pool on the north side with that on the older east flank.

Pierce Junction Tests

Pierce Junction is in line for a number of other important developments early this week with two other tests, one an almost rank wildcat in oil-showing sands and ready to test. This dome has been one of the most actively drilled on the coast and has been marked by constant extensions. Production already has been developed on the east, north and west sides and wildcatting now is going on to link these three districts around the dome. The wildcat to be tested early this week is Superior Oil Corp.'s No. 4-B Moody on the south side and, if it makes a well, new drilling probably will be forced to link this with Rio Bravo Oil Co.'s field on the west. Abercrombie & Harrison are testing a sand on the north side which, if a well, will extend the northern production another location to the west side.

Good Spindletop Well

Spindletop also added another good well in Yount Lee Oil Co.'s No. 73 Gladys City, which came in flowing 1,200 bbls. of pipe line oil through two half-inch-chokes, the oil testing 24.6 (corrected) gravity, from sand at 3,176 feet. This well is on the outside edge of production on the new west side field.

Ryeade Oil Corp. increased the daily production of its Bayou Bouillon Dome in St. Martin Parish, Louisiana, by working over two former small producers and putting them on the pump. These were Nos. 2 and 4 Bouillon fee.

Other completions, which were of little importance, included Navarro Oil Co.'s No. 1 Humble Dooley, Pierce Junction, flowing 1,000 bbls., 43 per cent b.s. and water, 4,027 feet; Gulf Production Co.'s No. 17 Chase, Boling shallow, flowing 450 bbls., 743 feet; Sun Oil Co.'s No. 30 Mitchell, South Liberty shallow pool, 100 bbls., 843 feet; Gulf Production Co.'s No. 6 McLean, South Liberty shallow pool, 400 bbls., 853 feet; Yount Lee Oil Co.'s No. 2 fee, Spindletop, 150 bbls., 3,975 feet; Humble Oil & Refining Co.'s No. 10 Jones Stateland, Goose Creek, pumping 15 bbls., 2,509 feet; and Rio Bravo Oil Co.'s No. 135, B.B.B.&C. Survey, Saratoga, pumping 80 bbls. net oil, 1,126 feet; Empire Gas & Fuel Co.'s No. 17 Barngrover, Hull, dry gas, 3,774 feet.

Allen Dome

Shell Petroleum Corp. tested a hard, sand, shale and lime formation at 5,035 feet in its No. 1 Random, a former small producer at Allen Dome, Brazoria County. The well came in spraying an estimated 10 bbls. of 23 gravity net oil with considerable gas but after three days the well stopped flowing.

At Pierce Junction, T. G. Shaw-Texas Exploration Co.'s No. 2-D Fitzsimmons, northeast flank, drilled into heaving shale and was abandoned at 4,300 feet. Union Sulphur Co.'s No. 733 feet, Sulphur Dome, drilled to 6,104 feet and plugged back to a sand at 3,507 feet, tested salt water and was abandoned. Gulf Production Co. quit No. 10 Trone, Long Point, in gyp at 929 feet. Sinclair Oil & Gas Co.'s No. 20 Jackson, Damon Mound, a former well deepened, drilled into heaving sand and was abandoned at 3,882 feet.

Although believing it could make a small well in its first test on the Roanoke geophysical dome in Jefferson Davis at the present depth of 4,200 feet, Vacuum Oil Co. has decided to deepen No. 1 DeVilbiss and is pulling tubing. The test swabbed some fluid of which about 5 per cent or around 10 bbls. daily was oil but it is the opinion that this oil is seepage into a salt water sand from a true sand below.

Barbers Hill—Chambers County

Humphreys Corp.'s No. 6-B Kirby was the center of interest in the Barbers Hill Field as the week closed. This test, which is on the southeast flank where the new deep producmtion is being developed, was to have drilled out plug late Saturday to test an oil showing sand at 5,387-94 feet. The casing was cemented at 5,376 feet.

This company's No. 1-C Kirby, completed the first of January, passed the 30,000-bbl. mark Thursday and Saturday was holding up at 1,374 bbls. daily with a pressure of 223 pounds. The holding up qualities of this producer have been watched closely. The well was brought in with an estimated initial flow of between 1,900 and 2,000 bbls. daily.

Humphreys Corp.'s No. 1 Cornelia Barber is drilling soft sand rock at 4,261 fee. Mills Bennett Production Co.'s No. 1 Means is drilling rock at 2,118 feet. This test drilled into a cavity during the week and lost 1,200 feet of hole and now is in new hole. Joe Bashara's No. 1 Tarbutton is in lime rock at 4,160 feet.

On the southwest flank of the dome, Yount Lee Oil Co.'s No. 1 Chambers also was in oil sand as the week closed. It was coring slightly below 5,200 feet and it is probable the sand will be tested there. No. 2 Richardson is being rigged up to pump and No. 3 Richardson is a derrick.

DeWalt—Fort Bend County

At DeWalt, Humble Oil & Refining Co.'s No. 1 Nelson is showing oil and gas in a hard sand at 3,403 feet. Its No. 2 Camp is in gumbo and lime at 1,027 feet where 13⅜-inch surface casing has been set. No. 2 Deatherage is drilling lime and gumbo at 2,776 feet. No. 5 Sugarland is being rigged up and No. 3 Brazos farms is a derrick. Nos. 1, 2 and 3 Brazos farms are standing as locations.

Raccoon Bend—Austin County

Humble Oil & Refining Co.-Valley Oil Corp.'s No. 2 Walton, which several weeks ago found a new oil sand at a total depth of 2,226 feet but which failed to make a successful completion, is drilling deeper in shale at 2,368 feet. It will drill to the deeper sand below 3,200 feet. No. 1-C Grawunder is drilling shale at 2,943 feet. No. 3 Urban is in shale at 384 feet, No. 2 Hardy is in sand at 2,759 feet; No. 2 E. B. Wilson is in shale and lime at 1,064 feet and No. 1 Ueckert is spudded. Two other rigs and two derricks are standing

Boling—Fort Bend and Wharton

An oil showing sand has been drilled into by Gulf Production Co.'s No. 5 Bay on the northeast flank of the Boling Dome. The hole is at a total depth of 3,990 feet. South Texas Petroleum Co.'s No. 1 Fotjeck-Hyde in the same area is drilling shale at 3,906 feet. Scott & Peck's No. 1 Armstrong is drilling hard gumbo at 3,820 feet. The Texas Company's No. 1-A Dipple is in gumbo and lime at 2,794 feet. Its No. 1-B Dipple is standing a derrick and No. 1 Pleasants a rig. This company's No. 2 E. C. Farmer on the southeast side of the dome is rigging up. Sun Oil Co.'s No. 4 E. C. Farmer is drilling hard sand at 3,504 feet. The latter's No. 2 Rogers is drilling gumbo at 1,620 feet after setting surface casing at 710 feet.

On the south side of the dome, Vacuum Oil Co. drilled into salt in its No. 1 Taylor and is at a total depth of 3,177 feet. A peculiarity of this test is that it found salt considerably higher than The Texas Company's No. 2-B Taylor would have hit it although the latter is 100 feet to the north and closer into the dome and should have got it higher. The Texas Company's well was abandoned at a total depth of 3,376 feet in cap rock. This test was not drilled into the salt which probably would have been found around 3,500 feet. Vacuum Oil Co.'s No. 2 Taylor is drilling lime at 3,295 feet.

Blue Ridge—Fort Bend County

Superior Oil Corp.'s No. 5 West-Schenck on the south side of the dome has drilled into an old showing sand and is at a total depth of 3,147 feet. Casing is being set for testing. Humphreys Corp.'s No. 5 West-Schenck is drilling shale and lime at 2,640 feet.

Gulf Production Co.'s No. 14 Luscher, east side of the dome, is drilling gumbo at 2,508 feet. The latter's No. 6 Invincible is in gumbo at 2,325 feet. South Texas Petroleum Co.'s No. 3 Lafferty is drilling gumbo at 2,604 feet.

On the north and northwest, Sheffield, Telshaw & Cady's No. 2 Blakely is drilling gumbo at 2,122 feet. Dudley S. Golding's No. 1 Overly, completed last April as a 200-bbl. well at 2,254 feet, is being rigged up to deepen. Blakely & Means' No. 2 Blakely is standing rigged. Navarro Oil Co.'s No. 4-A Blakely, completed last January flowing 2,000 bbls. at 3,509 feet, has started drilling deeper and is in sticky shale at 3,560 feet.

Big Creek—Fort Bend County

Navarro Oil Co.'s No. 2 Davis, completed in December as a shallow pumper at 789 feet, started drilling deeper and has gone into another shallow sand at 1,214-26 feet, which will be tested. This test originally was started for a deep hole. The Texas Company's No. 4 Wheat is drilling sticky shale at 3,504 feet. Gulf Production Co.'s No. 51 Davis was spudded in the middle of the week and is down 412 feet. No. 36 Davis, a work over, is drilling deeper at 3,622 feet.

Humble—Harris County

South Texas Petroleum Co.'s No. 3 Morris on the south side of the field got under way during the week for another deep test and Saturday was in gumbo at 522 feet. This test will be of particular interest in view of determining the extent of the deep producing

(Continued on Page 230)

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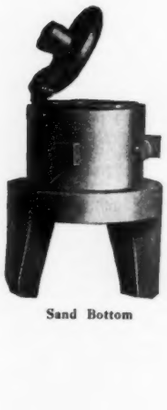

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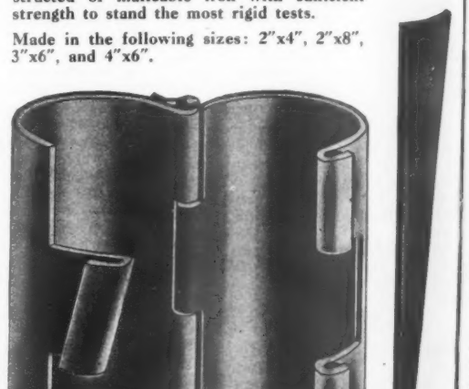

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Lea County Wildcats Report Shows

New Rental Regulations Reported Withdrawn Until Legislature Meets. Wildcat Show in Northern Colorado Dome

By Tolbert R. Ingram
Staff Correspondent, Rocky Mountain Area

DENVER, Colo., Jan. 26.—Several wildcats in Lea County, southeastern New Mexico, were rivals in interest this week. The Texas Production Co.'s No. 1 Shepherd, in the Jal area, is showing for 4,000,000 feet of gas and 50 to 75 bbls. of oil a day at 3,223 feet with the tools in the hole, and its No. 1 Moberly, in the same district, is beginning to show gas. The Skelly Oil Co.'s No. 1 Joyner, after making 5 to 10 bbls. of water per day, made 110 bbls. of oil. Marland Production Co.'s No. 1 Brooks will be abandoned at 4,003 feet, and its No. 1 Lynn made 40,000,000 feet of gas on a test. State Land Commissioner Pankey has withdrawn new rules and regulations establishing minimum rentals for the first year on state land due to protests over the high price, and he will leave the matter to the legislature. Flynn, Welch & Yates' No. 1 Jackson, near the Artesia Pool in Eddy County, may make a 200-bbl. well. Transcontinental Oil Co. has made a location in Chaves County, 8 miles east of Hagerman. Continental Oil Co. has cleaned up its fishing job on the Table Mesa Dome and is making new hole.

A wildcat being drilled north of the Fort Collins-Wellington Dome in northern Colorado by Stanley Barrows and others, on the Round Butte structure, found a show of oil and no water in the Lakota sand and prospects are sufficiently encouraging for the operators to decide to make a test of the Sundance. Two small producers at 51 feet and 100 feet near the site of the first well drilled in Colorado 66 years ago have been completed by Clem Lovisone. A test is to be drilled within the city limits of Grand Junction in Mesa County. The Ohio Oil Co. is drilling into a sand on the Hiawatha Dome in Moffat County that is below all horizons previously tested and is showing 1,000,000 feet of gas at the top.

One completion, a 25-bbl. well in Carbon County, by the Ohio Oil Co., was the only one reported in Wyoming this week. This company has made a location for a test on a new structure near Rock River.

A wildcat 30 miles east of the Wyoming line, near Crawford, Neb., being drilling by William Erbe and others, is yielding some interesting geological data.

NEW MEXICO

Interest in southeastern New Mexico developments this week was about equally divided between the favorable and unfavorable news. The Texas Production Co.'s No. 1 Shepherd, SE cor. NE. Section 6-26-37, in the Jal district in Lea County, supplied some of the more favorable news. Last week this well was reported making 4,000,000 feet of gas, estimated at 3,160 feet. This was followed by a good show of oil at 3,206-12 feet. At 3,218 feet the well commenced spraying a little oil, the quantity in the hole apparently being sufficient for it to rise to the gas horizon. The total depth is 3,223 feet where it is delayed by a fishing job. The gas is estimated at 4,000,000 feet at this depth and the quantity of oil at 50 to 75 bbls. a day. The location is about midway between the Marland Production Co.'s No. 1 Eaves, Section 19-26-37, and its No. 1 Sholes, NW cor. SW, Section 19-27-37, both gas wells. The Marland's No. 1 Sholes is shut down at 3,030 feet after an extended attempt to drill deeper, and it probably will be completed as a gas well at this depth. The Texas Production Co.'s No. 1 Cagle, NE SW, Section 9-26-37, in the Jal district, 1¾ miles to the southeast of its No. 1 Shepherd, has been completed as a gas well at 3,473 feet, with an estimated flow of 65,000,000 feet. Same company's No. 1 Moberly, NW SE, Section 17-26-37, in the same area, core drilled to 3,390 feet in white sand when bailing mud for a test began. At last reports about half of the mud had been bailed out and gas was beginning to show through a hole half full of the fluid. This well is about 1½ miles northwest of No. 1 Rhoades, the discovery well in the Jal area.

The Skelly Oil Co.'s No. 1 Joyner, NE cor. SE, Section 26-25-36, on the west side of the Jal district, which has been attracting considerable attention for several weeks, was still bottomed at 3,297 feet at last reports and making 5 to 10 bbls. of water. In the 24-hour period ending at 7 o'clock a. m. January 16, the well made 100 bbls. of oil. It will be plugged back and mudded behind the 8¼-inch casing in an effort to get rid of the water. The Marland Production Co.'s No. 1 Brooks, NW cor. SW, Section 8-20-33, is bottomed at 4,003 feet and making water at that depth. It will be abandoned at this depth. Last November it had a hole full of sulphur water at 3,210-20 feet in white sandy lime. More sulphur water was encountered at 3,710-30 feet. After encountering the last water, it was decided that the possibilities had been exhausted. The Marland's No. 1 Lynn, NW cor. SE, Section 26-23-36, is bottomed at 3,660 feet at which depth it was tested and made approximately 40,000,000 feet of gas. At 3,613-19 feet it had a good show of oil in sandy lime.

Eunice District

The Midwest Refining Co.'s No. 13 Farnsworth, NE NE, Section 13-26-36, is drilling at 950 feet in red rock, and the Marland Production Co.'s No. 1 Meyer, SW cor. NW, Section 26-20-37, in the Eunice district, is shut down at 3,540 feet. It had approximately 10,000,000 feet of gas at 3,508-35 feet, followed by more gas at 3,535-40 feet, the tools being blown up the hole. The same company's No. 1 Lockhart, NW NW, Section 31-21-36, in the same district, is bottomed at 3,360 feet in broken lime. The 6⅝-inch was cemented at 3,346 feet. The Marland's No. 1 Reed, NE cor. SW, Section 22-20-36, in the San Simon district, is shut down at 2,700 feet for engine repairs, and its No. 1 Warren, SW SW, Section 28-20-38, near Nadine, is shut down at 2,930 feet. Henderson, Dexter & Blair's No. 1 McDonald & Jewett, SE cor., Section 18-20-34, encountered water at 805 feet and is setting the 10-inch at 875 feet. The Empire Gas & Fuel Co.'s No. 1-C State, SW cor., Section 12-21-34, is drilling at 3,575 feet in salt, and Hill & Abel's No. 1 Maechtel, SW cor., Section 5-26-33, is bottomed at 4,842 feet and fishing. It topped the Delaware at 3,785 feet. The Maljamar Oil & Gas Co.'s No. 2 Pearsall, C NE NE, Section 33-17-32, in the Caprock district, is drilling at 3,920 feet in white lime. It had a show of gas, estimated at 500,000 feet, with 410 pounds pressure, and a little oil, followed by more gas at 3,900-04 feet.

Advices from Santa Fe are to the effect that B. F. Pankey, commissioner of the State Land Office, has withdrawn the rules promulgated January 15 establishing much higher minimum rental or bonus for first year on state lands in certain areas of southeastern New Mexico, because of the numerous protests received and that the problem of setting the minimum rental will be left to the legislature. Protests were general from all sections of the State, and Commissioner Pankey is quoted as saying the land office will not take any further action until the legislature acts. He had requested Governor Dillon to submit the entire matter of minimum rentals to the legislature.

Eddy County

In Eddy County, Flynn, Welch & Yates' No. 1 Jackson, C NE, Section 13-17-30, northeast of the Artesia Pool, is attracting some attention due to the prospects of it being one of the best wells in that district completed for some time. It encountered a break in the lime at 3,358 feet and in a five-hour bailing test failed to exhaust the oil. It was estimated good for 50 bbls. At 3,404 feet another break occurred and the oil rose 925 feet in the hole. At 3,450 feet it made three flows of 35 bbls. each in eight hours, and it is estimated the well will be good for around 200 bbls. Same firm's No. 56 State, Section 6-19-28, is fishing for tools at 2,300 feet.

In Chaves County, the Transcontinental Oil Co. is reported moving in for a test on the SE Section 1-14s-28, about 8 miles east of Hagerman. Snowden & McSweeney's No. 1 Merchant, NW NW, Section 27-15-23, on the Coontail structure, is bottomed at 3,500 feet and reaming at 3,483 feet.

A new operation in Rio Arriba County is reported in Jarvis Bennett and others' No. 1, C NE SW, Section 8-31n-1w, in the Monroe district, which is shut down at 300 feet. The surface is Lewis shale and the Dakota expected at 1,700 feet is the objective.

Rattlesnake Dome

The Continental Oil Co.'s No. 17, C NE, Section 2-29-19, on the Rattlesnake Dome, a test to the Pennsylvanian, which has had more than the usual share of bad luck, again is making new hole after being tied up for three months with a fishing job. It is bottomed at 6,378 feet and cleaning out, the tools having been recovered. This is the first test to the Pennsylvanian undertaken on any of the producing structures in the San Juan Basin, having cased off 2,500 bbls. of production in the Dakota to go to the lower horizons. It commenced drilling more than three years ago. The San Juan Leaseholds Co.'s No. 3 Bowman, NW NE, Section 30-30-15, in the Meadows district in San Juan County, appears to have overcome the water troubles which delayed progress, and is drilling below 2,020 feet with the upper Mesa Verde as the objective. The Angel Peak Oil Co.'s No. 1 Garland, NE NE, Section 11-28-11, Kutz Canon district, set the 8¼-inch at 1,815 feet on top of the Picture Cliff sand.

UTAH

The Utah Southern Oil Co.'s No. 1-A J. L. Shaffer, Section 36-26-20, on the Cane Creek Dome in Grand County, Utah, has resumed drilling after being shut down since before the holidays. Delay was due to difficulty encountered by the crew in reaching the location, an ice jam in the Colorado River having closed transportation on the stream. The crew went in by pack train. It is drilling in shale at 2,820 feet and making a little gas. Same company's No. 1 King, Section 13-23-20, Salt Valley Dome, will

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GOOD SHOWING OF LIGHT CRUDE IN ROYALITE OIL CO.'S NO. 15

By Victor Lauriston
Staff Correspondent, Canadian Fields

CHATHAM, Ontario, Jan. 26.—In the Turner Valley Field, southwest of Calgary, Royalite Oil Co.'s No. 15, LSD 1, Section 12-20-3w5, offsetting McLeod Oil Co.'s No. 1 to the north and west, has a good show of light crude in the Home sand at 3,003 feet. Pipe lines have been connected with the storage tanks and a capacity test is in progress. The well is reported flowing by heads. Royalite's No. 18, LSD 15, Section 12-20-3w5, has entered the deep lime at 3,822 feet, getting between 3,000,000 and 4,000,000 feet of wet gas in the top of the lime. The flow will be cased off and 6¼-inch casing cemented in the top of the lime.

Royalite's No. 12, LSD 3, Section 13-20-3w5, is drilling at 3,123 feet. Royalite's No. 13, LSD 6, Section 13-20-3w5, is at 4,915 feet, drilling and reaming. Royalite's No. 14, LSD 4, Section 7-20-2w5, is standing cemented at 3,252 feet after running casing past the lost tools in the lime. Royalite's No. 16, LSD 2, Section 12-20-3w5, is drilling at 4,639 feet. Royalite's No. 17, LSD 13, Section 6-20-2w5, is shut down at 3,930 feet, the crew being off temporarily on account of the influenza. Royalite's No. 19, LSD 5, Section 6-20-2w5, is drilling at 3,530 feet. Royalite's No. 20, LSD 7, Section 12-20-3w5, is at 3,003 feet and underreaming and cleaning out at 2,961 feet. Royalite's No. 21 is drilling at 1,240 feet.

Foothills Oil & Gas Co.'s No. 2, LSD 8, Section 1-20-3w5, is rigging up to resume drilling at 3,707 feet after taking some light crude production at this depth.

Home Oil Co.'s No. 1, LSD 10, Section 20-19-2w5, is drilling at 5,192 feet. Home's No. 3, LSD 14, same section, is standing cemented at 4,429 feet. Home's No. 4, same LSD, is drilling at 597 feet. Northwest Associated's No. 1, LSD 6, same section, is drilling at 3,252 feet.

Announcement has been made by J. H. McLeod, western petroleum manager of Imperial Oil, Ltd., that flush joint casing will be tried out by Royalite Oil Co. and other Imperial subsidiaries in the Turner Valley deep drilling. It is claimed that this type of casing gives a rotary outfit many of the advantages of a diamond drill, and will enable the rotary to successfully combat the high gas pressures encountered in the deep lime. This is the first use of flush joint casing in the Turner Valley Field.

Norman Harvey, age 21, employed by the Royalite Oil Co. in the Turner Valley Field, was instantly killed recently when he was crushed beneath eight tons of casing which he was helping to unload from a tractor.

South End of Turner Valley

In the south end of the Turner Valley, Southwest Petroleum, Ltd., a subsidiary of Foothills Oil & Gas Co., has a derrick up and is rigging up for a deep test.

Okalta Oils' No. 2, LSD 8, Section 1-20-3w5, is pumping 100 bbls. of light crude from the horizon at 3,170 feet.

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Santa Fe May Soon Hit First Peak

A Deeper Zone Threatens to Establish Another Peak Later in Year. Getty Test Nearing Completion May Tell the Story

By L. P. Stockman
Staff Correspondent, California Fields

LOS ANGELES, Calif., Jan. 26.—California is well on the way to another record-breaking year and recent developments indicate that crude oil production in 1929 will probably exceed the output for 1928 and may even exceed the State record of 263,728,895 bbls., established during the calendar year of 1923, when several prolific fields were undergoing intensive development simultaneously. State production passed the 750,000-bbl. mark during the middle of January for the first time since October, 1923, and this major upswing, which got under way in November of last year, is expected to continue at least for several weeks more under the powerful stimulant of deep-zone development at Santa Fe Springs. It seems almost a foregone conclusion that daily production in California will exceed the 800,000-bbl. mark, which has been generally predicted for several months past. Current production is already within striking distance with considerably less than 40,000 bbls. required to attain the projected goal.

Developments within the next few weeks are expected to have a decided bearing on the future trend of production and the 800,000-bbl. objective may be temporarily delayed if George F. Getty encounters prolific production in his deep exploratory well, which is already below the Buckbee horizon in search of deep Miocene production, as a large number of Buckbee producers will be immediately killed and deepened. Santa Fe Springs has displaced Long Beach as the dominating factor in State production and should continue to produce at an excessive rate for several months, although the first of two peaks expected to be established in 1929 should be reached within the next six weeks. The deep Buckbee zone at Santa Fe Springs has already begun to show preliminary symptoms of depletion although this condition has only been manifested in one section of the field up to the present time. There is no questioning the fact, however, that this horizon has shown a weakening during the past two weeks and it is only a matter of time until it reaches the acute stage. The intermediate Nordstrum horizon, on the other hand, is still holding up in good shape due to its superior thickness of oil sand and fewer number of completions. The 20 wells producing from the intermediate Nordstrum zone are averaging 3,525 bbls. at the present time, as compared with an average of 2,100 bbls. for the 36 producers in the Buckbee zone. Operators have been hoping that further exploratory work at Santa Fe Springs would be held off until a more opportune time as production below the Buckbee zone is not desired at the present time. Two wells are already under way, however, with Miocene production as their objective and although one of these, the Associated's No. 2 Clarke, down 7,050 feet at present, may not encounter deeper production because of its structural location, George F. Getty's No. 19 should tap lower productive horizons in the near future if they exist as the bit in this well was rotating ahead a few days ago at 6,270 feet.

Lawndale a Factor

The Lawndale Field of Los Angeles Basin is also expected to become a factor in State production during 1929 but the potentiality of this recently discovered field has not yet been determined. It is the general consensus of opinion, however, that a daily production of at least 25,000 bbls. may be anticipated within the next six months. It must be remembered, however, that this estimate is based on a very limited amount of information as there is no surface evidence of structure and the productive limits of the field with respect to the initial completion are consequently unknown. Production in this area will be determined to a large extent by the geographic location of productive acreage. If the axis of the Lawndale structure bisects the town lot area in a northwest and southeast direction we may anticipate a larger production than would otherwise result if the axis was situated west of the discovery. The acreage east of the initial completion at Lawndale has been intensely subdivided while the area to the west is comprised of relatively large blocks of acreage which would preclude intensive drilling which has always characterized development of subdivided town lot areas.

Kettleman Hills May Be Late

The Kettleman Hills Field of Kings County will become a factor in State production during the latter part of the current year, although development work in this area is being undertaken in a conservative manner. The extreme depth at which production is secured will prove a deterrent to the immediate development of substantial production as operators will restrict drilling operations until further information has been secured with respect to the limits of production. Wells in this field will cost about $150,000 from spud to completion if no mechanical trouble is developed to retard drilling. The Elwood Field of Santa Barbara County is being developed along conservative lines by the Barnsdall and Rio Grande interests, which control the total proven acreage, and production in this area will consequently be held in restraint. The Fruitvale, Mount Poso and Round Mountain Fields of Kern County could all reach substantial proportions if consistently developed but market requirements are expected to exert considerable affect on future production as it is economically impossible to absorb any further substantial amount of heavy, unrefinable crude. Production in these areas is therefore expected to continue to feel the existing curtailment which has been in affect practically since discovery.

Santa Fe Nearing Peak?

Although daily production at Santa Fe Springs has shown substantial increases from week to week during the past few months, this district is nearing the crisis as far as present development is concerned. It is believed that the initial 1929 high will have been definitely established within the next six weeks with the probable peak approximating somewhere in the neighborhood of 250,000 bbls. daily. This may vary one way or the other but some competent observers do not believe the peak production resulting from Nordstrum and Buckbee zones development will approach the 319,000-bbl. mark established by engineers a few months ago. It is within the realms of possibility, however, that daily production at Santa Fe Springs may approximate 300,000 bbls. later in the year when the deeper Miocene production is developed. This is problematical of course and is dependent on the existence of additional productive horizons below the bottom of the present Buckbee zone. The probable existence of an additional productive sand in the Miocene formation below the Buckbee zone, which is of Pliocene age, is generally admitted, although there is no definite basis for this assumption except the relative position of this formation in the geologic column and its presence in other Los Angeles Basin fields. Geologists almost universally believe, however, that oil sands of Miocene age will subsequently be developed at Santa Fe Springs although they may consist of a number of independent horizons instead of being continuous, as occurred at Long Beach. It is interesting to note in this connection that one well, George F. Getty's No. 19, is already headed down in search of deeper production. The outcome of work on this well should be watched very closely as it will have a direct bearing on the future production situation in California.

Lawndale Large in Area

The Lawndale Field of Los Angeles Basin is an unknown factor as far as productivity and scope of structure is concerned and it may or may not become an important factor in future production. All available evidence tends to indicate that the Lawndale Field will be unusually large in area although the amount and thickness of sand present, prevailing water conditions, porosity and saturation of oil sands are important factors which have not yet been determined. There is very little surface evidence of structure at Lawndale and consequently this field presents a very unusual situation, especially in view of the fact that several wells located within a radius of 5 miles from the discovery well have in the past encountered oil sand which only failed to result in commercial production because of water trouble which defied correction. This tends to indicate the existence of one large extensive field or the presence of several individual fields located en echelen instead of being located on a single major fault zone. Only the bit can definitely determine existing subsur-

IMPORTANT NORTHERN CALIFORNIA WILDCATS

Company, well and location--	S-T-R	Depth	Status
California Western Oil Co., No. 1 Elkins, Ventura Co.	28- 4-19	2,951	suspended
Exline, Emma, No. 1 Saticoy, Ventura Co.	33- 3-21	2,412	fishing
Ohio Oil Co., No. 1 Saticoy, Ventura Co.	32- 3-21	4,880	abandoned
Standard, No. 5-9 Saticoy, Ventura Co.	19- 2-22	4,465	hd. sd. drilling
American Oil Co., No. 1 Camarillo, Ventura Co.	33- 2-20	715	hd. sd. drilling
Star Pet. Co., No. 2 Canet, Ventura Co.	13- 3-23	6,775	resume work
Bolsa Chica, No. 1 Temescal, Ventura Co.	4- 4-18	653	gr. sd. drilling
The Texas Company, No. 1 Hueneme, Ventura Co.	...	...	location
Miley, E. J., No. 2 Casitas, Ventura Co.	12- 3-21	785	suspended
Shell, No. 1 Marr, Simi	31- 3-17	1,314	hd. sd. drilling
Continental, No. 1 Sulphur Mountain, Ventura Co.	21- 4-22	3,440	br. sh. drilling
Continental, No. 2 Sulphur Mountain, Ventura Co.	22- 4-22	4,150	br. sh. drilling
Milham Expltn., No. 1-A Buttonwillow, Kern Co.	8-28-23	4,662	gas well
Milham Expltn., No. 2 Buttonwillow, Kern Co.	8-28-23	2,730	gas well
Milham Expltn., No. 3 Buttonwillow, Kern Co.	8-28-23	2,694	gas well
Milham Expltn., No. 4 Buttonwillow, Kern Co.	6-28-23	2,670	gas well
Milham Expltn., No. 5 Buttonwillow, Kern Co.	5-28-23	2,500	gas well
Milham Expltn., No. 6 Buttonwillow, Kern Co.	8-28-23	2,676	gas well
Milham Expltn., No. 7 Buttonwillow, Kern Co.	6-28-23	2,720	suspended
Milham Expltn., No. 8 Buttonwillow, Kern Co.	15-28-23	4,500	suspended
Doheny-Stone, No. 1 Salisbury, Kern Co.	7-29-24	4,631	cleaning out
Southern Calif. Gas Co., No. 1 Buttonwillow, Kern Co.	4-28-23	4,272	suspended
Southern Calif. Gas Co., No. 2 Buttonwillow, Kern Co.	27-28-23	Rig	suspended
Lincoln Drlg. Co., No. 1 Buttonwillow, Kern Co.	6-28-23	901	sd. sh. drilling
Richfield Oil Co., No. 1 Semitropic, Kern Co.	21-26-22	4,760	set pipe
Richfield Oil Co., No. 2 Semitropic, Kern Co.	36-27-23	.	location
Pacific Eastern, No. 1 Union Ave., Kern Co.	6-30-28	5,640	suspended
Pacific Eastern, No. 2 Union Ave., Kern Co.	6-30-28	4,500	suspended
Pacific Eastern, No. 3 Union Ave., Kern Co.	6-30-28	4,443	gas, shut in
Pacific Eastern, No. 5 Union Ave., Kern Co.	5-30-28	4,991	suspended
Stabler, W. W., No. 1 Comanche Point, Kern Co.	23-32-29	3,250	oil showings
Symark Oil Co., No. 1 Edison, Kern Co.	24-29-29	929	gr. sd. drilling
Midway Northern, No. 1 Edison, Kern Co.	29-29-30	3,841	suspended
Deizel, S. A., No. 1 Delano, Kern Co.	4-26-27	3,300	gray sand
Elmer Oil Co., No. 1 Shafter, Kern Co.	8-28-25	5,504	fishing
Elmer Oil Co., No. 1 Rosedale, Kern Co.	33-29-26	Mtl.	building rig
Standard, No. 1 San Emidio, Kern Co.	35-11-22	3,793	fishing
Union, No. 1 San Emidio, Kern Co.	5-10-21	2,020	br. sh. drilling
Currency Pet. Co., No. 1 Vineyard, Fresno Co.	28-21-14	950	bl. sh. drilling
Union, No. 1 Huasna, San Luis Obispo Co.	34-32-15	3,232	redrilling
Union, No. 1 North Huasna, San Luis Obispo Co.	12-32-14	2,880	reaming
Panorama Oil Co., Well No. 1, San Luis Obispo Co.	7-31-21	3,590	br. sh. drilling
Dollar Oil Co., Well No. 1, San Luis Obispo Co.	13-32-22	Rig	suspended
Sequoia Oil Co., Well No. 2, San Mateo Co.	15- 7- 5	1,605	suspended
Sunset Pacific, No. 1 Saratoga, San Mateo Co.	13- 7- 4	Rig	suspended
Calhoma Oil Co., No. 1 Livermore, Alameda Co.	9- 3- 3	1,521	hd. sd. drilling
Foster & Hammill, Well No. 1, Alameda Co.	21- 3- 3	457	hd. sd. drilling
R. Y. Hanlyn, Well No. 1, Alameda Co.	3- 5- 2	360	suspended
Shell, No. 1 Guadalupe, Santa Barbara Co.	36-10-35	1,318	hd. sd. drilling
Shell, No. 2 Goleta, Santa Barbara Co.	36- 5-31	591	sd. drilling
Standard, No. 1 Point Conception, Santa Barbara Co.	...	Rig	rigging up
Standard, No. 1 Point Arguello, Santa Barbara Co.	X- 7-35	820	gr. sd. drilling
Bankline Oil Co., No. 1 Mesa, Santa Barbara Co.	X- 4-27	Rig	rigging up
Petroleum Sec., No. 1 Santa Ynez, Santa Barbara Co.	...	.	location
Tepesquit Oil Co., Well No. 1, Santa Barbara Co.	3- 9-32	2,710	suspended
Becker, Geo. F., No. 1 Summerland, Santa Barbara Co.	33- 4-25	3,090	suspended
Chamberlain Oil Co., Well No. 1, Santa Barbara Co.	29- 4-27	6,304	cleaning out
Continental, No. 1 Carpenteria, Santa Barbara Co.	33- 4-25	3,440	sd. sh. drilling
Southwest Prod. Co., No. 1 Gillam, Santa Barbara Co.	2- 4-28	2,260	rd. sd. drilling
Colusa Oil Co., Well No. 1, Colusa Co.	31-15- 4	380	redrilling
Nuna Oil Co., Well No. 1, Colusa Co.	19-15- 5	400	suspended
Superior Oil Co., No. 1 Calivada, Colusa Co.	31-15- 4	1,011	suspended
North Counties Oil Co., Well No. 2, Humboldt Co.	36- 2- 1	2,205	suspended
Humboldt Oil Co., Well No. 1, Humboldt Co.	6- 3- 1	3,041	redrilling
Kuhns, H. L., Well No. 1, Merced Co.	9-12- 9	1,570	suspended
Angiola Oil Co., No. 1 Angiola, Tulare Co.	27-22-23	3,171	hd. sd. drilling
Shell, No. 1 Dudley, Monterey Co.	15-22- 9	Mtl.	building rig
Brown Oil Co., No. 1 Parkfield, Monterey Co.	...	...	location

IMPORTANT SOUTHERN CALIFORNIA WILDCATS

Ring Pet. Co., No. 1 Inglewood, Los Angeles Co.	28- 2-14	122	suspended
Petroleum Securities, No. 1 Hermosa, Los Angeles Co.	32- 3-14	Mtl.	building rig
West. Drlg. & Prod. Co., No. 1 Manhattan, Los Angeles Co.	30- 3-14	Rig	rigging up
Mont. Park Oil Co., No. 1 Browning, Monterey Park	26- 1-12	4,420	suspended
Mont. Park Pet. Co., No. 1 Jepson, Monterey Park	25- 1-12	3,937	suspended
Dollar Oil Co., No. 1 Bell, Los Angeles Co.	22- 3-12	5,010	abandoned
Associated, No. 1 Taylor, Los Angeles Co.	33- 2-12	6,005	gr. sd. drilling
Rio Grande, No. 1 Downey, Los Angeles Co.	34- 2-12	2,000	hd. sd. drilling
Burlingham Pet. Co., No. 1 Compton, Los Angeles Co.	17- 3-13	Mtl.	building rig
Security Pet. Co., No. 1 Lynwood, Los Angeles Co.	13- 3-13	5,333	suspended
Richfield, No. 1 Maywood, Los Angeles Co.	13- 2-13	3,811	sd. sh. drilling
Easton & Smith, No. 1 Calabasas, Los Angeles Co.	19- 1-17	2,982	suspended
Russell Oil Co., No. 2 Joughin, Los Angeles Co.	25- 3-17	1,500	suspended
Pomona Oil Co., Well No. 1, Los Angeles Co.	32- 1- 8	1,081	hd. sd. drilling
Anchor Oil Co., No. 1 Puente, Los Angeles Co.	9- 2-10	4,820	suspended
Richfield Oil Co., No. 1 Puente, Los Angeles Co.	9- 2-10	3,434	to test show.
Calif. Eastern, No. 1 Wickham, Los Angeles Co.	32- 5-17	3,050	br. sh. drilling
The Texas Company, No. 1 Anaheim, Orange Co.	35- 4-10	3,440	hd. sd. drilling
Bastanchury Ranch Co., Well No. 1, Orange Co.	21- 3-10	Rig	suspended
Mesa Pet., No. 1 Newport, Orange Co.	21- 6-10	3,482	suspended
West. Drlg. & Prod. Co., No. 1 Newport, Orange Co.	18- 6-10	4,430	hd. sd. drilling
West. Drlg. & Prod. Co., No. 2 Newport, Orange Co.	18- 6-10	...	grading
Hall Pet. Co., No. 1 Murrietta, Riverside Co.	23- 7- 3	975	fishing
Hemet Pet. Co., No. 1 Ward, Riverside Co.	9- 5- 1	3,203	hd. sd. drilling
Davenport O. & G. Co., No. 1 San Marcos, San Diego Co.	30-12- 8	892	suspended
Turner, S. S., No. 1 Escondido, San Diego Co.	25-12- 2	1,620	hd. sd. drilling

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face conditions and this exploratory work will result in a considerable expenditure.

Santa Fe Springs

Deep-zone exploitation at Santa Fe Springs yields its usual large quota of new wells during the past week and the General Petroleum Corp. similarly maintained its position as the largest single operator with an aggregate daily production of 45,000 bbls. from the deep zone at the present time. This company is believed to have broken all existing records by completing 18 new wells in the deep zone within the short period of a few weeks. The General Petroleum's field department has just closed another exceptionally busy week during which time six new wells were successfully completed. Five of these new producers were finished in the deep Buckbee zone and one, No. 186-F, in the intermediate Nordstrum horizon. This well showed an initial daily production of 2,225 bbls. of exceptionally clean 35.1 gravity oil and 3,100,000 feet of wet gas daily from 5,002 feet. The largest producer finished by General Petroleum during the past week was No. 191-B, which came in under a natural flow doing 4,375 bbls. of exceptionally clean 34.5 gravity oil and 9,800,000 feet of saturated gas daily from 5,769 feet. No. 187-B on the Hill lease, another Buckbee zone completion, also registered large production upon completion at 5,880 feet. This new well, which was finished with a 5¾-inch oil string carrying 271 feet of 100-mesh screen, tanked 4,260 bbls. of clean 34.9 gravity oil during the initial 24-hour test. Nos. 168-B and 168-C on the Santa Fe lease registered initials of 2,150 bbls. and 2,970 bbls. daily from 5,804 feet and 5,802 feet, respectively, the oil in each case being clean. No. 189-D, the eighteenth deep zone well finished by the General Petroleum at Santa Fe Springs, made 650 bbls. during the first 12 hours after completion and tanked 1,210 bbls. of clean 34.5 gravity oil during the first full 24-hour test from 5,735 feet. The Shell Oil Co. finished a fairly good well in the western end of the field when No. 19 G. H. & N. was brought in flowing 1,870 bbls. daily from 5,815 feet, the hole having been finished with a 4¾-inch liner landed on bottom. The Texas Company chalked up two new wells during the past week. No. 5 Batson was completed doing 3,796 bbls. of exceptionally clean 34.7 gravity oil daily from the Nordstrum zone at 5,295 feet, and No. 5 Weaver, 3,250 bbls. daily from the same intermediate zone at 5,095 feet. A check of other development work under way indicates the completion of about 10 additional wells during the coming week and field production will consequently continue its up trend.

Long Beach

Although there are still 155 incompleted drilling projects under way in the Long Beach Field this district is definitely headed for a lower level. The daily output has been relatively stable for more than six months but started to slip during the latter part of December due to a smaller number of completions and decreased drilling. Deep-zone exploitation, which got under way during the latter part of 1927, pushed the daily output up to 200,000 bbls. early in June of last year and it hovered around this figure for several months. Production is gradually settling and although The Texas Company, Richfield, Shell, Dabney and Johnston, General Petroleum, Jergins Syndicate, and other operators will finish satisfactory completions from time to time, the trend from now on will be definitely downward. The rate of decline will in all probability be relatively slow for some time due to anticipated completion of new wells but the descent in the near future is expected to become more rapid. Long Beach is perhaps one of the greatest fields ever opened up in the United States and its great thickness of continuous oil sands approximating in excess of 2,500 feet on top of the structure is indicative of long-lived production. Drilling operations in this field will continue off and on for several years as some companies have potentially productive acreage which has not yet been developed to the maximum extent.

One of the most interesting developments in the Long Beach Field during the past week was the landing of a string of pipe by George Langstaff in his No. 1 Bixby at 7,225 feet. This well, located south of the Los Cerritos town lot area and apparently off structure, has encountered several minor showings at various times during the course of work but none of them up to the present time warranted the landing of pipe. A rather favorable show at 7,230 feet resulted in the decision to test out the formation at this point, although the core sample did not show a heavy saturation. There were five wells put on production in this field during the past seven-day period, none of which, however, showed large production. Dabney & Johnston's No. 17 and No. 1 Warburton of the Graham & Loftus Oil Co. were about on a par, the former showing an initial of 1,315 bbls. of 27.5 gravity oil daily from 6,276 feet and the latter, 1,310 bbls. of clean 29.4 gravity oil daily from 6,902 feet. The Macmillan Petroleum Co. completed its No. 7 and this new well, located at Thirty-third and Pine Streets, came in under a natural flow doing 750 bbls. of relatively clean 24.7 gravity oil daily from 4,555 feet. The Shell Oil Co. chalked up two completions, No. 36 Alamitos, doing 1,165 bbls. of 29.1 gravity oil daily from 6,307 feet, and No. 6 Wilbur, doing 1,455 bbls. per day from 6,600 feet. This company also finished No. 13 Cresson at 7,368 feet but it has not yet been passed for production. No. 10 Jones, No. 4 Binkley and No. 5 Shell fee should also be finished in the near future.

Elwood Terrace

The Barnsdall and the Rio Grande companies have just concluded joint drilling operations on No. 5 Bell Luten in the prolific Elwood Field of Santa Barbara County and this project is expected to be tanking oil within the next 24 hours. A penetration of approximately 200 feet has been taken in this new well and it is expected to compensate for the additional oil sand opened up by showing substantial production. It showed an exceptionally high gas pressure during the course of work and almost got beyond control while a water test was under way a few days ago. It was subdued by a generous application of fortified heavy rotary drilling mud, however, and was successfully prevented from running wild. The Barnsdall and Rio Grande have one other well under way at the present time, No. 3 Doty, but No. 4 Bell Luten will be spudded in immediately upon the completion of No. 5 Bell. No. 1 Elwood Acres, located 6,003 feet east of the discovery well, is being temporarily delayed because of mechanical trouble at 4,716 feet. Drilling operations in the recently discovered Kettleman Hills Field of Kings County are progressing at a rapid rate, although work during the past week was slowed up somewhat due to a persistent rain of several days' duration. The inadequacy of roads into this untraversed hilly country has hampered drilling operations but steps are already under way to remedy this difficulty and these will take definite form in the near future. Based on the present status of work, 16 wells will be actually making hole within the next 30 days as seven are already under way and the balance are being rushed ahead as quickly as possible. All of this work centers in the north dome of the Kettleman Hills anticline but it is a foregone conclusion that additional deep exploratory work will be undertaken in the middle and south domes in the very near future.

Midway-Sunset

Thomas H. Purman focused the attention of operators on the Midway-Sunset Field of Kern County during the past week when his No. 1 in Section 12-32-22 encountered an excellent looking oil sand in the brown shale at the comparatively shallow depth of 915 feet and a string of 9-inch casing has just been landed a few feet off bottom. This well is located outside the present proven limits of production and will result in immediate additional development work if commercial production is secured. The outlook is quite favorable but the commercial aspect will not be determined until an actual production test has been consummated. The Union completed a fishing job which has been holding up progress in its No. 1 Western Petroleum, an outpost in the southwestern part of the field which has developed two good-looking sands in Section 27-32-23. Drilling operations have accordingly been resumed at 2,895 feet and an early test is anticipated. The Standard, Cypress Petroleum and Italo Petroleum, which spudded in new wells on acreage adjoining the Union's Western Petroleum property following this concern's discovery, are all rotating ahead but have not yet encountered anything out of the ordinary. Only one of these wells, however, the Italo Petroleum's No. 1 in Section 26-32-23, has reached a depth sufficient to encounter the anticipated sand. This well is rotating ahead in a hard sandy shale at 3,530 feet with nothing of importance logged from the grass roots down.

Ventura Avenue

The Associated successfully completed No. 25 Lloyd, a new well in the Ventura Avenue Field during the past week, but the initial production was somewhat of a disappointment. It came in under a natural flow but only made 610 bbls. of 30.9 gravity oil and 5,800,000 feet of wet gas daily from 7,504 feet. It is located quite favorably with respect to structure, however, and will probably show increased oil production when the gas volume declines. This well, it will be noted, has an unfavorable gas-oil ratio, it requiring approximately 10,000 feet of natural gas to lift 1 bbl. of crude oil to the surface. Completion of the Associated's No. 7 Ventura Land & Water, located in the extreme eastern part of the Ventura Avenue Field, has been held up for several weeks as this well apparently does not have sufficient gas pressure to result in sustained production. It flows intermittently by heads as gas pressure builds but has not yet shown a sufficient sustained volume of gas to result in commercial production. The Shell should list several new completions in the Ventura Avenue Field during the next 30 days as a number of projects are rotating ahead in the oil sand at present. The General Petroleum's No. 12 Notten is being delayed at 7,234 feet because of mechanical trouble and completion will be held up indefinitely or at least until the crew succeeds in freeing the string of 4-inch drill pipe which froze during the course of work. The Bolsa Chica Oil Co. has the makings of what will probably be an excellent producer when No. 3 Hartman is eventually completed around the 7,400-foot level.

TANKER SHIPMENTS FROM LOS ANGELES TO ATLANTIC AND GULF COAST PORTS

Commodity—	Total this week	Daily average	Total last week	Daily average	This year to date	Same time last year
Crude oil	.....	.....	.....	.....	.....	756,906
Diesel and gas oil	.....	.....	75,250	10,750	247,750	165,656
Gasoline	646,601	92,372	147,829	21,118	1,737,973	1,046,071
Coastwise—						
Crude oil	469,681	67,097	547,548	78,221	2,027,833	1,283,419
Fuel oil	516,782	73,826	338,071	48,296	1,556,768	1,576,237
Diesel and gas oil	16,924	2,418	17,556	2,508	80,947	170,299
Gasoline	101,969	14,567	157,056	22,437	883,871	994,734
Kerosene	.....	.....	461	66	1,139	11,511
Naphtha distillate	.....	.....	.....	.....	.....	30,590
Exports—						
Crude oil	62,337	8,905	.....	.....	207,240	180,780
Fuel oil	380,933	54,419	502,353	71,765	1,520,557	2,413,402
Diesel and gas oil	37,455	5,351	.....	.....	202,615	233,705
Gasoline	140,723	20,103	267,287	38,184	1,027,621	422,252
Kerosene	63,834	9,119	47,632	6,805	215,865	337,385

TANKER SHIPMENTS FROM SAN FRANCISCO TO ATLANTIC, GULF COAST PORTS

Diesel and gas oil	.....	.....	.....	.....	.....	167,695
Gasoline	100,362	14,337	.....	.....	254,056	154,238
Lubricants	.....	.....	.....	.....	.....	69,854
Coastwise—						
Fuel oil	73,152	10,450	139,817	19,974	212,969	431,102
Diesel and gas oil	4,023	575	.....	.....	4,023	1,478
Gasoline	29,923	4,275	137,711	19,673	306,874	182,965
Kerosene	.....	.....	.....	.....	4,280	29,862
Exports—						
Crude oil	.....	.....	71,453	10,208	71,453	20,073
Fuel oil	.....	.....	.....	.....	.....	333,325
Diesel and gas oil	.....	.....	52,869	7,553	52,869	.....
Gasoline	88,164	12,595	.....	.....	546,954	569,695
Kerosene	.....	.....	.....	.....	68,030	80,391
Lubricants	.....	.....	13,693	1,956	13,693	.....

RECORD SHIPMENTS FROM MUSKEGON; MICHIGAN WILDCATTING SPREADS

By Special Correspondent

MUSKEGON, Mich., Jan. 26.—More crude oil was shipped out of Muskegon by the Dixie Oil Co. bound for refineries of the Standard Oil Co. of Indiana during the past week than during any previous month. In all more than 60,000 bbls. of crude was moved by train from the Dixie and Standard tank farm to Whiting, Ind., and Zilwaukee, Mich., near Saginaw, the major portion going to Whiting. The aggregate daily production of exactly 100 oil wells has been 5,140 bbls. for the period of 15 days. The record pipe line run for any single day was 6,200 bbls.

A total of 77,100 bbls. of oil was run from the producing wells during the 15 days. The daily average was 5,140 bbls., varying in gravity from 36 to as high as 40.

Six Completions

There were only six completions during the week, two for gas, two for oil and two dry holes. Five were in Muskegon Township and one in Laketon Township.

The Dixie Oil Co. decided not to drill into the oil sands of the Dundee formation on two wells in which a good flow of gas had been struck, No. 1-D Dow and No. 2-D Dow, both in NW SE Section 5-10-16, and having a flow of 2,500,000 and 3,500,000 feet, respectively. No. 1 was completed at 2,058 feet and No. 2 at 2,054 ft.

One of the largest new oil producers in the upper Traverse was the Reed Oil Co.'s No. 2 Torrent, SE SW Section 8-10-16, which came in at 1,625 feet with an initial of between 350 and 400 bbls.

The Continental Motors Corp.'s No. 6 fee, NW NE Section 22-10-16, came in at 1,705 feet in the upper Traverse as a 100-bbl. initial producer. The top of the Traverse was struck at 1,646 feet. The completion of this producer in the upper formation south of two other Continental producers in Section 15 is believed to indicate a new pool at least in the upper formation. No well has been drilled to the Dundee formation in this vicinity, although the Wolfe Oil Co.'s No. 1 Shanks Brothers, SW SW Section 14-10-16, which was dry in the upper Traverse the past week and is now being drilled to the Dundee, will be an important test.

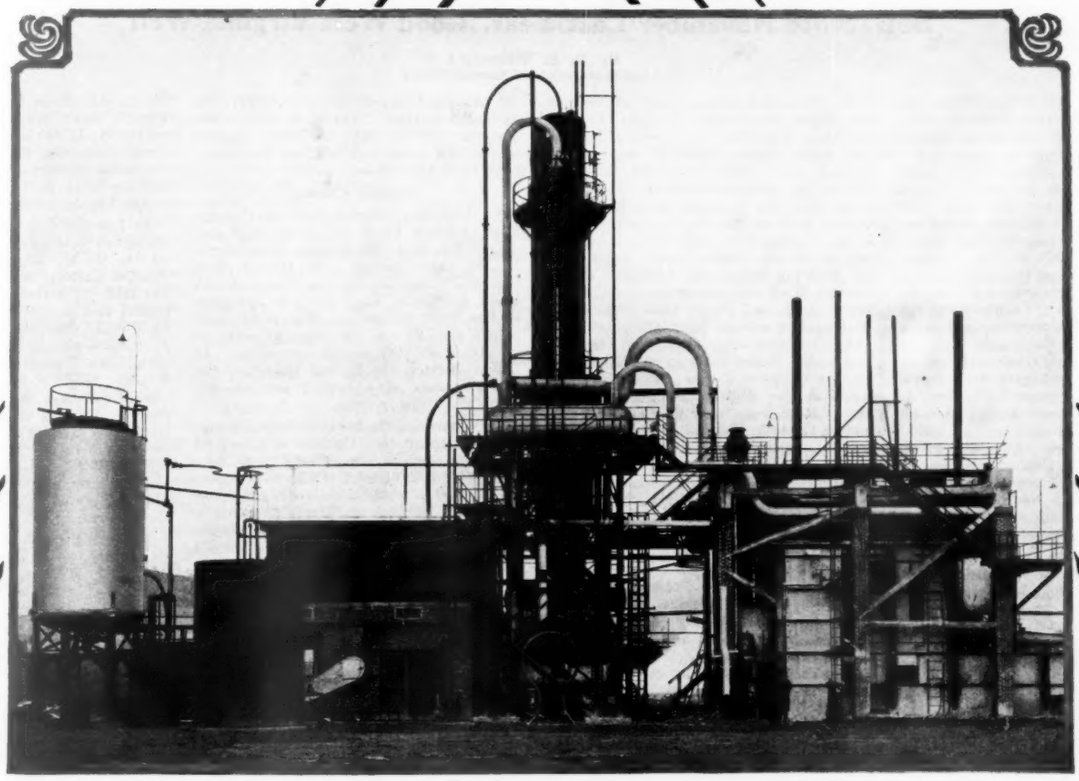
The Lima Oil Corp.'s No. 3 Haight, SE NE Section 9-10-16, was dry in the upper and lower Traverse, and will not be drilled to the Dundee, as it is only about 700 feet west of a dry hole in the lower formation. The Lima-Haight well was drilled to about 1,900 feet and will be plugged and abandoned.

Laketon Township.

The only completion in Laketon Township was W. D. McMillan & Co.'s No. 1 Ford, NW NW Section 5-10-17. Bottom water was struck at 2,095 feet in the Dundee, and it has been plugged and abandoned. It was the farthest west test.

Enough oil to fill the hole about 1,500 feet was struck in the lower Traverse in J. V. Howard's No. 1 Cockwell, NW NW

(Continued on Page 233)



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Five Wells Aggregating 500 Bbls. Has Produced 20,848 Bbls. Since November Last Year. Good West Virginia Well

By D. S. Wakenight
Staff Correspondent, Eastern Fields

PITTSBURGH, Pa., Jan. 28.—Development work in the Eastern fields was almost featureless during the week. For the most part the wells were no better than light pumpers. At present there is but one section, Buffalo Township, Butler County, Pennsylvania, that is attracting any attention. Located to the southwest of production an important test is due in the sand on the Hughan farm. If this well comes in a producer it will extend the producing area of the pool 1,500 feet to the southwest from the initial test on the John Harvey farm.

For the first time in many weeks the West Virginia fields presented a better than light pumper. It is the South Penn Oil Co.'s No. 87 on the O. D. Stockley farm, in Geary district, Roane County, estimated good for 100 bbls. a day in the Big Lime formation.

Best in Southeast Ohio

In the northwest quarter of Section 4, Jackson Township, Muskingum County, the Pure Oil Co. completed and shot in the Clinton sand a test on the W. D. Powers farm. By flowing and swabbing they recovered 190 bbls. the first 24 hours. This is the best producer completed in that county for several weeks.

Hocking County

In the northwest quarter of Section 12, Washington Township, Hocking County, the Preston Oil Co. completed and shot in the Clinton sand a second test on the Cynthia A. Marks farm, which produced 40 bbls. the first 24 hours. The total depth is 2,803 feet.

In Bedford Township, Meigs County, the Ohio Fuel Supply Co. drilled a second test on the W. J. Maghue farm through the Berea grit. It is a gasser good for 85,000 feet at a total depth of 1,632 feet. In the northeast quarter of Section 17, Sutton Township, Meigs County, S. D. Sloan & Co. completed in the Cow Run sand No. 3 on the J. E. Stobert farm. It is a duster.

In the southwest quarter of Section 10, Fallsbury Township, Licking County, the Emerald Petroleum Co. has completed a second test on the Joseph E. Martin farm, good for 9 bbls. a day in the Berea grit.

In Section 2, Jackson Township, Noble County, Urban Nau and others completed in the Macksburg 800-foot sand a test on the L. C. Wilson farm. They developed only a light show of oil and gas. It is so light as to scarcely pay to operate it for either.

In the southwest quarter of Section 3, Ward Township, Hocking County, the Murray City Oil & Gas Co. completed and shot in the Clinton sand a second test on the C. A. Grummon farm. It is a 10-bbl. pumper. In the southwest quarter of Section 17, Seneca Township, Noble County, Rich Brothers & Co. have a 7-bbl. pumper in the Berea grit on the James W. Rich farm.

Perry County

In Section 31, Clayton Township, Perry County, the Dun Mar Oil & Gas Co.'s test on the James Higgins farm is a gasser. In Green Township, Hocking County, the Griffin Producing Co. has a 10-bbl. pumper on the S. W. Geiger farm. In Section 12, Pike Township, Coshocton County, the Leonard Oil & Gas Co.'s No. 5 on the Nancy Norris farm is showing for a 15-bbl. pumper in the Clinton sand. In the same township, Stephens Brothers are drilling on the Joseph Lake farm.

In the southwest quarter of Section 34, Falls Township, Hocking County, the Ohio Fuel Gas Co.'s second test on the John Harsh farm is dry in the Clinton sand. In Section 14, Richland Township, Holmes County, the East Ohio Gas Co. has the same luck at a second test on the G. O. Leatherbetter farm. A very light show of gas was developed in the Clinton sand. In Section 24, Madison Township, Licking County, George H. Long has completed in the Berea grit No. 6 on his own farm, showing for a very light pumper.

At Germantown, Section 18, Elk Township, Noble County, William Dennis has a duster in the Ullman sand at No. 4 on the William Dennis farm. On Sheets Run, Grandview Township, Washington County, Thomas McVey and others completed No. 3 on the D. W. Burnett farm. It is a gasser in the Keener sand good for 1,500,000 feet.

In the old Corning Field, Section 33, Monroe Township, Perry County, E. Conner & Co. completed in the Berea grit No. 18 on the Sunday Creek Coal Co.'s property. It is good for 3 bbls. a day. In Section 22, Noble County, C. E. Stephens & Co. have a 2-bbl. pumper at No. 3 on the Carl Heisler farm.

Monroe County

In Franklin Township, the Perry Oil & Gas Co. has completed in the Big Injun sand a 3-bbl. pumper on the John Sewick farm. In the southeast quarter of Section 11, same township, the Swasie Oil Co. has a duster in the Berea grit on the Mary and Luella Crum farm. In the same section and township, George Green has completed on the J. W. Robinson farm a 3-bbl. pumper in the Germantown sand at a total depth of 1,527 feet.

Meigs and Noble Counties

In the northeast quarter of Section 26, Sutton Township, Meigs County, the Davis Oil Co. completed a 5-bbl. pumper in the Berea grit, No. 6 on the G. Hysell farm. In the southwest quarter of Section 22, Noble County, the Elk Oil & Gas Co.'s second test on the Smithberger farm is good for 3 bbls. a day in the Germantown sand.

WEST VIRGINIA

In Clay district, Ritchie County, the Aetna Oil & Gas Co. has completed a small gas well on the Jewel farm. Near Mooresville, Clay district, Monongalia County, the J. H. McDermott Oil Co. completed in the Bayard sand a fair gasser on the Alpha Eddy farm.

On Mud River, Grant district, Cabell County, the Harshbarger Oil & Gas Co. has completed on the J. B. Kline farm a light gasser in the Berea shale. On Camp Creek, Poca district, Kanawha County, the Chartiers Oil Co. has completed its test on the V. G. Jones farm. It is dry in all sands. Grow & Decker are due in the sand at a second test on I. N. Morfors farm.

In New Milton district, Doddridge County, W. L. Travis has completed in the Big Injun sand a light gasser on the O. A. Sheets farm.

On the waters of Poplar Fork, Teays Valley district, Putnam County, one-half mile southeast of the Kuhn Oil & Gas Co.'s test on the Mary Meadows farm, the same company has completed through the Berea grit a test on the G. S. Hodges farm. It is a duster. One and one-half miles southeast of their test on the Charles Gillenwater farm, on Mud River, Meabon & Huffman have completed a second test on the Courts heirs' farm. It is a gasser in the Berea grit good for 250,000 feet.

In Central district, Doddridge County, the Clifton Oil Co. has drilled through the Big Injun sand No. 3 on the A. Doak farm. It is a duster. In Spencer district, Roane County, the Federal Oil Co. has a 5-bbl. pumper in the Salt sand at No. 42 on the Provident Coal Co.'s tract.

Lincoln County

In Jefferson district, Lincoln County, Earl Cameron has a Big Injun sand gasser at No. 3 on the Golden Stone farm. In the same district, the United Fuel Gas Co.'s No. 26 on the Horse Creek Land & Mining Co.'s tract is a gasser in the same formation. The same company's No. 23 on the same property is a gasser in the same formation. In Union district, the United Fuel Gas Co. has a gasser at a second test on the John W. Thomas farm.

In Chapmanville district, Logan County, the Trojan Gas Co. has a gasser in the Salt sand on the Henry McKinley farm. In Lee district, Calhoun County, the United Carbon Co.'s second test on the C. H. and J. J. Davis farm is a duster. In Center district, Wetzel County, Burley & Orndoff have drilled deeper a test on the Charles Pyles farm. It has a light show of oil and gas in the Gordon sand.

Kanawha County

On Elk River, Big Sandy district, Kanawha County, 300 feet east of S. H. Hall and others' test on the J. V. Merrick farm, The United Fuel Gas Co. at the mouth of Sand Run, completed a test on the Derrick heirs farm. It is a gasser in the Maxon sand good for 220,000 feet.

Starting New Work

In DeKalb district, Gilmer County, the McCall Drilling Co. has started to drill down from the Maxon sand to the lower sands No. 5 on the Biddle Brothers farm. In Murphy district, Ritchie County, the Hope Natural Gas Co. is due in the sand on the Lee Collins farm.

On the right fork of Turkey Creek, of Twelve Pole Creek, Harvey district, Mingo County, the Public Gas Corp. has drilled 28 feet deeper into the Maxon sand No. 22 on the Henry Closterman estate. It is a gasser good for 1,250,000 feet.

On Cain's Run, Murphy district, Ritchie County, the Hope Natural Gas Co. has completed in the Big Injun sand a test on the Lee Collins farm good for 10 bbls. a day. In Ten Mile district, Harrison County, Radd & Moses have drilled their test on the John Shahan farm through the Gordon sand. It is a gasser. In Coal district, same county, J. W. Johnson has completed in the same formation a gasser on the Calder Burley farm.

In Center district, Calhoun County, the Hope Natural Gas Co. has completed on the M. E. Kenney farm a gasser in the Big Injun sand. In the same district, W. H. Bickle has a gasser in the same formation on the Minnie Hamilton farm.

Gilmer and Roane Counties

In DeKalb district, Gilmer County, the Bowser Oil Co.'s test on the J. V. Mitchell farm is a gasser in the Maxon sand. In Geary district, Roane County, the United Carbon Co. has a gasser in the Big Injun sand at a second test on the A. L. Wright farm.

Test Wells

In Sherman district, Calhoun County, the Virginia Gasoline & Oil Co. has made the location on the Leason & Everett Proudfoot farm. On the Kanawha River, Center district, the Hope Natural Gas Co. has the rig completed on the Alice Hammett farm. In Elk district, Kanawha County, the Virginia Gasoline & Oil Co. has started to drill down from the Squaw sand to the Weir sand on the A. N. Galshell farm. In DeKalb district, Gilmer County, the Hope Construction & Refining Co. has cleaned out and shot No. 7 on the R. L. Weaver farm, increasing its production from 4 to 10 bbls. a day. In the same district, the same company is drilling Cora E. Ware from the Maxon to the Big Injun sand.

In Lee district, Calhoun County, F. F. McIntosh is rigging up at a second test on the J. M. Morgan heirs' farm. In Walker district, Wood County, the Pleasant Hill Oil & Gas Co. is rigging up at a second test on the Elmer Marshall farm. In Murphy district, Ritchie County, N. G. Jackson is rigging up on the C. A. Welch farm. In Union district, the Carnegie Natural Gas Co. has skidded the rig on the Lloyd Weaver farm. In Jefferson district, Lincoln County, the Calis Oil & Gas Co. is drilling on the King Land Co.'s property. In the same district, the Russell Gas Co. is drilling on the James Cooper farm and Earl Cameron has the road completed to a location on the J. A. Stone farm.

In Carrol district, Lincoln County, the Cambridge Gas Co. has started to drill on the J. H. King farm. In the same district, C. C. Wolfe is drilling on the Anna Midkiff farm. In Jefferson district, the Davis Gas Co. has started to drill on the H. P. Lovejoy farm.

In Washington district, Calhoun County, the Pure Oil Co. has started to drill on the A. A. McClain & Co. and rigging up the W. F. McClain & Co. farm. In Logan district, Logan County, the Peck Oil & Gas Co. has started to drill on the Peck heirs' farm. One mile north of Clarksburg, Clark district, Harrison County, Nathan Goff, Jr., has started to drill No. 22 on the Nathan Goff, Jr. farm.

SOUTHWEST PENNSYLVANIA

In Springhill Township, Green County, the Manufacturers Light & Heat Co. has started to drill on the John & M. C. Gilmore farm. In Aleppo Township, the same company is drilling on the W. N. Courtright farm. In Morris Township, Sprewells and others have started to drill on the Harry Clutter farm. In Richhill Township, George Drake has started to drill on the Henry Dinsmore farm. In Jackson Township, Milliken & Hoskkinson are due in the sand on the Benjamin Moore farm. In Morris Township, Nuss & McClay are due in the Gordon sand on the D. Morris farm. In Richhill Township, Frye & McCracken have started to drill on the W. J. Bryan farm. In Springhill Township, the Keystone Oil & Gas Co. is drilling deeper on the W. M. Caseman farm.

In Springhill Township, Greene County, the Dunnmar Oil & Gas Co. has drilled deeper its test on the Thomas Grove farm. It is dry in the Gordon sand. In Wayne Township, the Peoples Natural Gas Co. has a gasser in the Bayard sand on the William Zimmerman farm.

The new development in Buffalo Township, Butler County, is still the stellar attraction in the eastern fields. The most important test, now due in the sand, is the well on the Hugan farm, 500 feet southwest of the producer on the McFarland farm and about twice the same distance southwest of the first test on the John Harvey farm. If this well comes in a producer it will extend the producing formation to the southwest as the second test on the F. F. Trees farm extended the producing limits to the east from the initial well on the John Harvey farm. At present there are five oil producing wells in the pool, having an aggregate production of about 500 bbls. a day. Since November 19 of last year up to January 18 of this year the pool has produced 20,848 bbls.

Shallow Sand Field Near St. Louis

St. Clair County, Illinois, Well Makes 105 Bbls. First 24 Hours From 400 Feet. Central Ohio Maintains Pace

By Whit

Staff Correspondent, Central West Fields

FINDLAY, Ohio, Jan. 28.—Very little was accomplished in the way of completions and other field work in the Central West fields outside of Central Ohio, where drilling operations are going along as rapidly as during the last half of 1928. The feature well of the entire Central West Field since the last review was developed in western Illinois where the Ohio Oil Co. brought in a test on the Dyroff lease in Sugar Loaf Township, St. Clair County, that had an initial production of 105 bbls. at a depth of 400 feet. This is the second producing well for this company in this county and indicates a field of some importance and inexpensive to operate. Central Ohio also comes forward with a producer that showed 186 bbls. initial production from a depth of 2,796 feet in Jackson Township, Muskingum County, drilled by the Pure Oil Co.

Only one completion was reported from the old Lima Field of northwestern Ohio, in Section 32, Liberty Township, Hancock County, owned by L. Cramer, and credited as a 25-bbl. pumper. R. T. Rittenhouse is drilling No. 6 Frank Freed farm, Section 6, Eagle Township, same county.

There has been some controversy over drilling a lease in Hardin County, Ohio, and Judge Hamilton E. Hoge in Common Pleas Court decided that the Forest Oil & Gas Co. has the right to drill the well located between wells on the Kurtz and McKinley farm. Drilling has already started.

INDIANA

The only completion reported from Indiana is that of Pierce and others in their No. 3 well, 200 feet from the north line and 660 from the west line of the Pearl Shattuck farm, in the SW SE Section 31, Prairie Creek Township, Vigo County, and in the "Little Oklahoma" Field. Oil was found at 2,256 feet and produced 30 bbls. the first 24 hours of very high gravity crude.

ILLINOIS

It looks very much as though a new and prolific shallow sand field has been uncovered not far removed from St. Louis, Mo., but in Illinois, where the Ohio Oil Co.'s test, 1,500 feet from the south line and 200 from the east line of the Matilda Dyroff farm, in Section 28, Sugar Loaf Township, St. Clair County, Illinois. This well found its pay from 360 to 400 feet and the first 24 hours' production brought forth 105 bbls. of crude. It has not been announced if this formation is either the Niagara or Trenton Rock formation. This is the second producing well to be found in that particular section by this company, the other being No. 1 on the G. L. Tarlton, Jr., farm, same section, with a 25-bbl. initial production found at from 670 to 701 feet.

CENTRAL OHIO

The week's review of the Central Ohio fields shows 24 completions, 3 producers with an initial production of 41 bbls., 11 dry holes and 10 gas wells. There were 21 wells started and 17 locations staked out, a total of 38.

In Ashland County, Orange Township, the Kemrow County drilled in a good gas producer in No. 3 on the John T. Fluke farm, Section 15, and has started drilling No. 3 Emma Miller, Section 11. The Logan Gas Co. drilled in a gas well in No. 1-3,059 on the W. T. Alberson farm, Section 11, and a dry hole in No. 1-3,057 on the A. C. Smith farm, Section 15, where no sand was found. Ohio Fuel Gas Co. made a location for No. 2-3,437 on the Ella Donley, Section 33, same township. In Vermillion Township, Robinson and others drilled a dry hole on the John Hawks farm, Section 35, at from 2,940-41 feet. The Logan Gas Co. is drilling No. 1-3,069 on the Ada E. Emerick, Section 23, same township. In Green Township, the Ohio Fuel Gas Co.'s No. 1-3,321 on the J. F. Kettering farm, Section 35, failed to find any sand. Same company made a location on the Bertha M. Peters farm, Section 26, and is drilling No. 1-3,308 on the Ida M. Toms, Section 32, while the Logan Gas Co. made a location on the M. & L. Wittemire farm, Section 20. In Perry Township, Miller and others found 40 feet of sand in No. 5 on the Turman Smith farm. Section 20, the well producing an initial of 20 bbls. Robinson and others staked a location for No. 7 on the Riley Donelson, Section 19, and Curtis and others made a location for No. 7 on the Eliza Devault, Section 20. In Montgomery Township, the Kemrow Co. has started spudding on the Maurice Topping, Section 12.

In Medina County no new completions are reported but the Ohio Fuel Gas Co. has started work at its No. 1-3,422 on the E. D. Flickinger, Lot 49, Westfield Township, and the East Ohio Gas Co. made a location for No. 1 on the J. and L. Jemesis farm, Section 2, Chatham Township.

In Lorain County, the Ohio Fuel Gas Co. brought in a very fine gas producer in No. 1-3,302 on the George April farm. Lot 91, and made a location for No. 1 on the Jacob Haury and others' farm, same lot.

Wayne County

In Wayne County, Congress Township, Harmon & George brought in a good gas well in a 10-foot pay sand on the Doctor Biddle farm, Section 5, while F. E. Barnhart and others got a dry hole on the T. G. McCauly farm, Section 5. The Ohio Fuel Gas Co. made a location for No. 1-3,436 on the C. F. Myers, and for No. 1-3,435 on the G. V. Kline, both in Section 7, same township. The Logan Gas Co.'s No. 1-3,064 on the Aaron Saurer farm, Section 14, Sugar Creek Township, is an average gas producer.

In Cuyahoga County, Olmstead Township, L. M. McGrath made a location for a test on the George Pilgrim farm, Lot 30.

In Knox County, Jefferson Township, the East Ohio Gas Co. found a dry hole on the M. J. Strang farm, Section 20. The Preston Oil Co. is drilling a second test on the R. E. VanWinkle farm, Section 14, Perry Township, Coshocton County.

In Summitt County, Franklin Township, F. A. Brendall and others' No. 2 C. L. Wilcox farm, Section 26, is one of the best late gas wells found in the area, with a natural flow of around 7,000,000 feet. In Boston Township, the East Ohio Gas Co. found a dry hole on the G. L. Gebauer farm, Section 22, and H. H. Cupler struck a duster on the Fred Detliff, Section 4, Spring Township, same county.

In Licking County, the Emerald Petroleum Co.'s second test on the John E. Martin farm, Section 10, Fallsburg Township, pumped 10 bbls. initial at from 802 to 800 feet. Hulse & Kundtz's second test on the G. W. Moran farm, Section 11, is only a 1-bbl. pumper at from 646-58 feet. In Perry Township the Preston Oil Co.'s No. 11 on the James Wright farm, Section 16, pumped 10 bbls. initial from 767-77 feet. Hulse & Kundtz made a location for No. 7 on the Joseph Chaney farm, Section 1, same township. Hope Construction & Refining Co. is drilling No. 1 on the Sarah Rector farm. In Hopewell Township the Ohio Fuel Gas Co. is drilling No. 1-3,371 on the Flora E. Fulk farm, Section 23, and the Pure Oil Co. made a location for a second test on the Henry Laughman farm, Section 1. The Wehrle Gas Co. is drilling on the Buckingham heirs, Section 36, Newark Township.

In Muskingum County, Jackson Township, the Hope Construction & Refining Co. made a location for No. 5 on the W. E. Helphrey farm, Section 6. In Perry Township the Mid-East Oil Co. is drilling a second test on the William Knight farm, Section 15, where a good well was found a month or so ago. Ohio Fuel Gas Co. is drilling No. 1-3,400 on the Edwin P. Allen farm, same section, while the Rymilper Oil Co. made a location on the Harry E. Dutro farm, in the Third-Quarter second.

Athens County

In Athens County, Ames Township, Kiggins and others have a light gas well in No. 1 on the O. M. Lovell farm, Section 3, in the second Berea sand, the gas being found at 1,407-18 feet and drilled to a total depth of 1,428 feet. Ohio Fuel Gas Co. is drilling No. 1-3,374 on the John T. Fleming farm, same section. The Logan Gas Co. is drilling No. 49 on the Sunday Creek Coal Co.'s property, in fractional Section 4, Dover Township. In Carthage Township the same company's No. 2-3,062 on the Frank Guthrie farm, Section 31, is a small gas well in the Macksburg sand at from 1,122-35 feet. In Berne Township the Ohio Fuel Gas Co. is drilling No. 1-3,342 on the E. R. Galloway farm, Section 17, also drilling No. 1-3,420 on the C. D. Henry farm, Section 34. Nusum and others are drilling a second test on the Fred S. Moore farm, in fractional Section 5, Lodi Township.

In Meigs County, Tyree and others' No. 4 on the James Stobart farm, Section 17, Sutton Township, was a dry hole in the first Cow Run sand at from 618-33 feet, and a location has been made for No. 5, same farm. The Preston Oil Co. is drilling No. 5-1,284 on the C. J. and W. R. Easterday farm, Section 18. Pure Oil Co. made a location for No. 5 on the William J. Krauter farm, Section 19, same township. In Bedford Township the Ohio Fuel Gas Co. has an average gas well in No. 2-3,287 on the George E. Mayhugh farm, Section 27, at from 1,620-32 feet.

In Jackson County, Franklin Township, Wheeler & Griffith's test on the J. W. Eubanks farm, Section 32, proved a duster. Bottom of lime in this well was found at 2,305½ feet and drilled to a total depth of 2,600½ feet. Ohio Fuel Gas Co. made locations for No. 4-3,429 on the Ala Jones Spohn farm, and No. 4-3,439 on the Ida E. Jones farm, both in Section 23. In Lick Township the Ohio Fuel Gas Co. is drilling No. 1-3,207 on the Peter Radcliff farm, Section 35.

In Lawrence County, Symmes Township, the Ohio Fuel Gas Co. is drilling

(Continued on Page 290)

OPERATIONS IN KENTUCKY FIELDS HANDICAPPED BY BAD WEATHER

By Whit

Staff Correspondent, Kentucky-Tennessee

OWENSBORO, Ky. Jan. 26.—Road conditions are worse in Ohio County than in Daviess County and inability to haul explosives is holding up completions that require shots. No large wells are reported outside of No. 3 on the Burton farm, in the Burton Pool, of Daviess County, reported showing for better than 100 bbls. initial. Few wells will be completed until better weather prevails. The same conditions prevail in Hancock, Henderson, Breckenridge, McLean and other counties of the western area of the state.

Week's Work

A summary of the week's work in the Kentucky fields shows 31 completions, 19 producers with an initial production of 331 bbls., 12 dry holes and no gas wells.

County—	Comp.	Oil Wells	Prod.	Dry
Ohio	8	4	116	4
Daviess	2	1	100	1
Allen	4	2	4	2
Warren	2	2	6	0
Henderson	1	1	30	0
McLean	1	1	20	0
Brec'enridge	1	0	0	1
Estl'	5	4	12	1
Wayne	3	1	2	2
Johnson-Magoffin	2	2	35	0
Powell	1	1	6	0
Knox	1	0	0	1
Total	31	19	331	12

Eastern Kentucky Wells

An even dozen of the 31 wells reported in Kentucky come from the eastern area, where the wells are usually small producers.

In Wayne County, District 2, the Wood Oil Co.'s No. 67 on the Miller Brothers farm, is a 2-bbl. pumper. Coffey Oil Co.'s No. 1 H. E. Coffey farm, is a dry hole. while in District 3, Work & Crell found a duster on the Mack Koger farm.

In Estill County, District 7, the Superior Oil Corp.'s No. 14 Clayton Tipton farm, is only a 1-bbl. pumper. In District 8, this same company's No. 28 on the Thomas Henderson farm, pumped 5 bbls.; No. 22 A. F. West and others pumped 3 bbls.; and No. 9 on the James Griffin farm, owned by the same company was a duster. In District 10, A. J. Calvert's No. 11 William Cox farm, pumped 3 bbls.

In Johnson-Magoffin counties, the Swiss Oil Corp.'s No. 33, Sanford Lyons farm, District 32, is a 15-bbl. pumper from the Weir sand, and Hupp, Duff and others' No. 6, J. M. Fraizer farm, District 31, pumped 20 bbls. initial. In Powell County, the James McCoy Oil Co. found a 6-bbl. pumper in No. 2 on the Bert Hall farm, District 15.

In Knox County, unknown parties drilled a dry hole on Red Bird Creek.

Western Kentucky Wells

Among the most important of the wells drilled in the western Kentucky area was a deep test made by C. L. Dunbar on the John Gibson farm, 1½ miles south of the town of Sample, in Breckenridge County, which went to a total depth reported at 2,305 feet, with no showings worth while of either oil or gas.

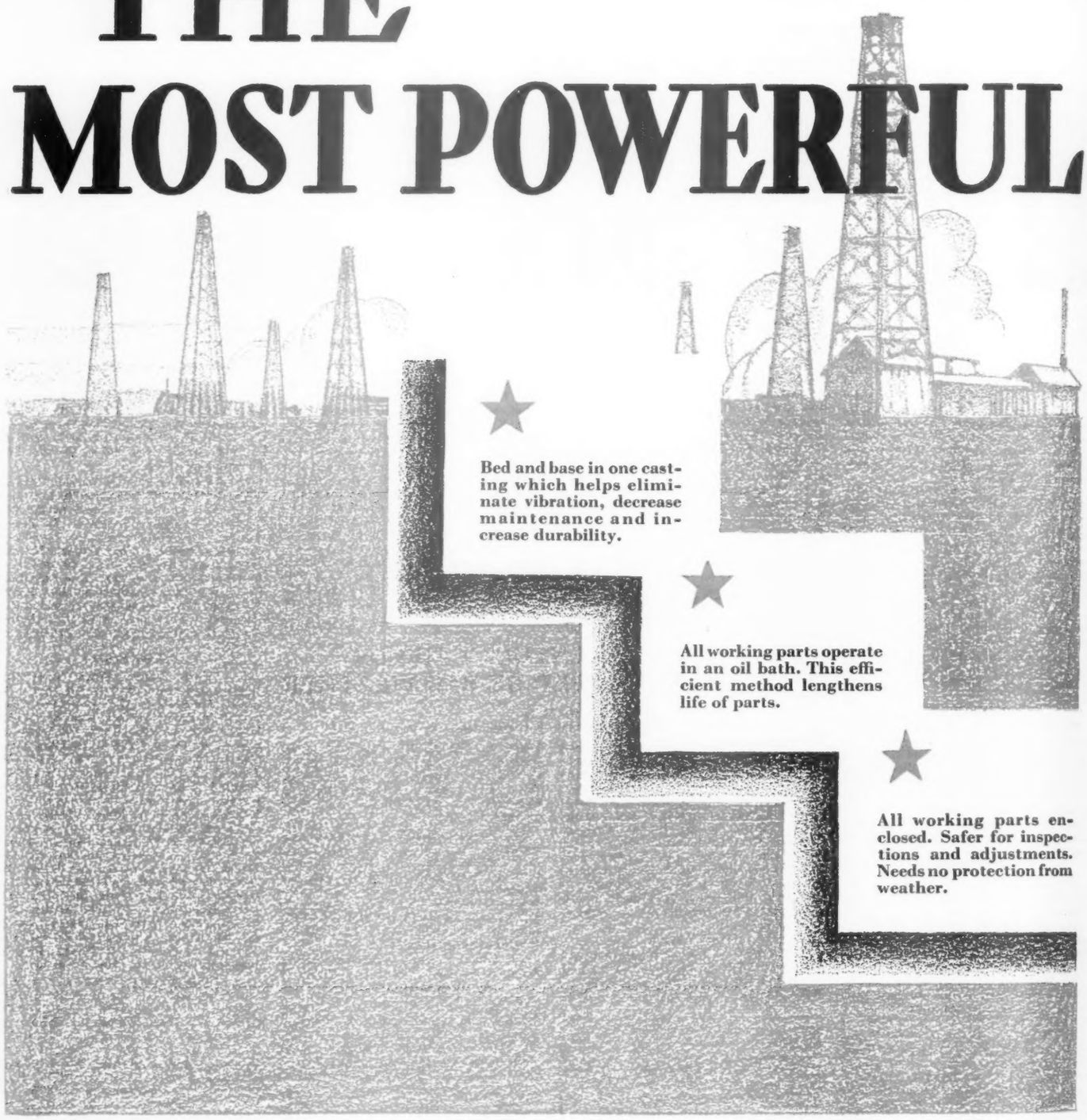
The Ohio Oil Co.'s No. 1 on the George B. McManana farm, 4 miles north of Calhoun, and in McLean County, has been put on the pump and reported at 20 bbls. initial.

Henderson County is reported with a nice looking producer, drilled by R. F. Shircliffe on the William Triplett farm, in the vicinity of of Niagara. As soon as weather permits there will be a renewal of activity in that area, as the new well is reported around 25 bbls. initial.

In the Bowling Green Field, in Warren County, W. B. Caulle's No. 4 on the J. C. Davenport farm, 2 miles northwest of Bowling Green and 450 feet from the north and east lines of the lease, pumped 5 bbls. initial at a depth of 920 feet. The Ohio Oil Co.'s test in the southwest cor-

(Continued on Page 290)

THE MOST POWERFUL


Bed and base in one casting which helps eliminate vibration, decrease maintenance and increase durability.
All working parts operate in an oil bath. This efficient method lengthens life of parts.
All working parts enclosed. Safer for inspections and adjustments. Needs no protection from weather.

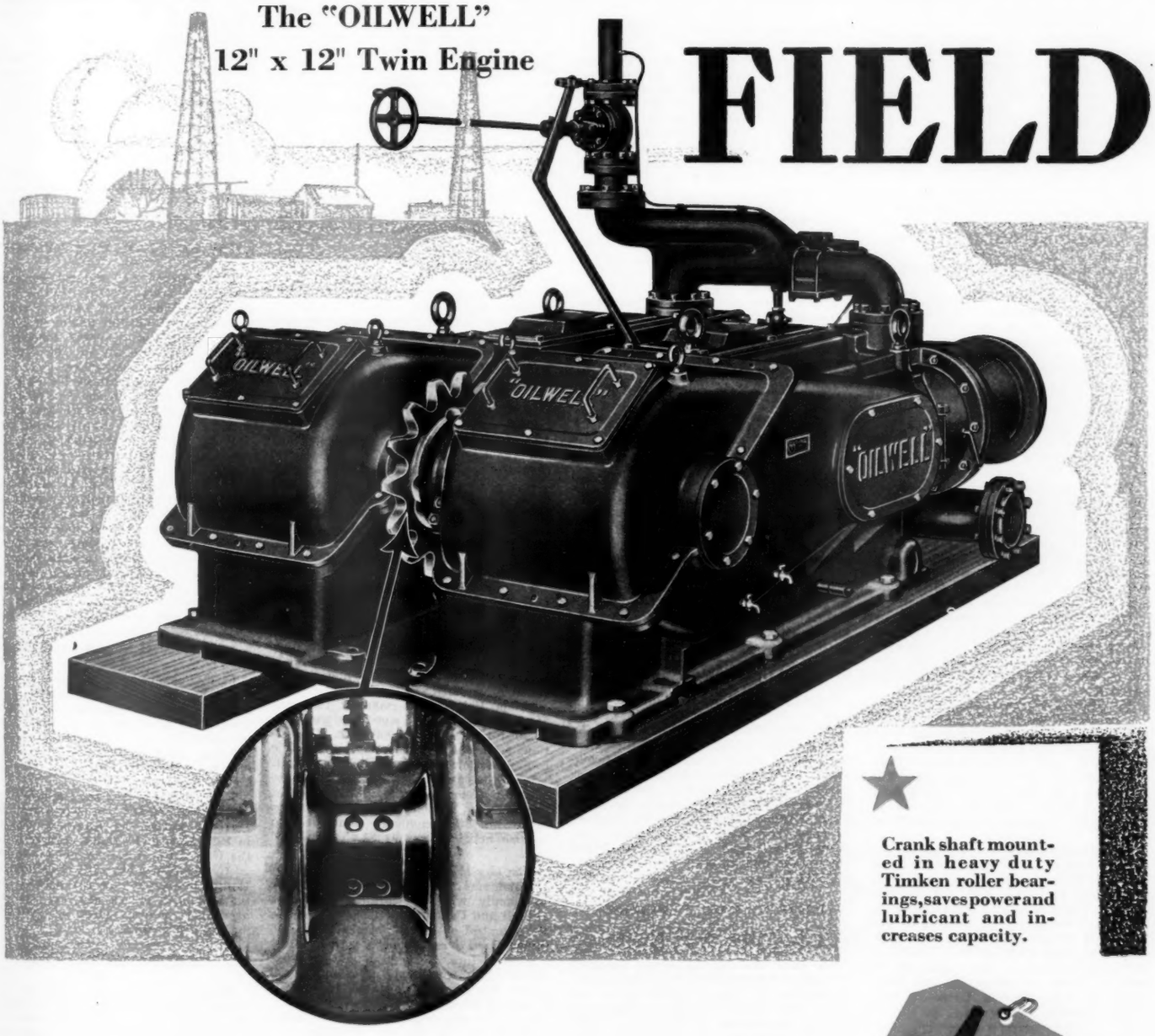
OIL WELL SUPPLY CO.

NEW YORK—LOS ANGELES—PITTSBURGH, U.S.A.—SAN FRANCISCO—TAMPICO—LONDON

WORLD'S OLDEST AND LARGEST MANUFACTURERS OF OIL FIELD EQUIPMENT

ENGINE IN THE FIELD

The "OILWELL"
12" x 12" Twin Engine



Crank shaft mounted in heavy duty Timken roller bearings, saves power and lubricant and increases capacity.

The sprocket of the "Oilwell" Engine is cast in two pieces and bolted together. It may be easily removed and replaced by a cathead, which is also split, when the use of such equipment is desirable.

Natural Gas Developments

GRAND HAVEN LINE HAS BEEN POSTPONED

MUSKEGON, Mich., Jan. 26.—Granting of a 30-year franchise to sell natural gas from the Muskegon Field in Grand Haven, about 12 miles south of Muskegon, to have been decided at a special election January 31, has been indefinitely postponed when the Michigan Pipe Line Co. withdrew its request for the franchise in its present form.

A new franchise will be prepared and submitted to the people of Grand Haven. Officials of the Michigan Pipe Line Co. are also officials of the Ottawa Oil Corp., which has been drilling in the Muskegon Field. The company also has connections with the Muskegon Oil Corp. and its associated companies which hold about 85 per cent of the acreage in the area where most of the natural gas has been encountered in the Muskegon Field.

If the Michigan Pipe Line Co. does not go through with its plans, some other company may. The Muskegon Pipe Line Co. is negotiating with William Hatton, president of the Eagle-Ottawa Leather Co., which would use about 1,000,000 feet of gas.

Gas from the Reed Oil Co.'s No. 1 Young, SE NE Section 11-10-17, Laketon Township, which has been making about 4,000,000 feet and from 600 to 1,070 bbls. of oil, will be cut into the Continental Motors Corp.'s private line.

A 4-inch line about 2 miles long will carry the gas from the Laketon Township well to the main 8-inch line of the Continental on the edge of the Muskegon Township Field. A minimum of 1,000,000 feet of gas will be used from the Laketon well, the first in this area to sell gas.

The Brunswick-Balke Collender Co. of Chicago, which operates one of its largest plants in Muskegon, has contracted to purchase about 2,000,000 feet from the Continental line. Two miles of 6-inch pipe line is on the way to Muskegon and expected to arrive next week to be laid and ready to serve the Brunswick plant with gas about February 15.

The Muskegon public schools are considering the purchase of about 4,000,000 feet of gas from the West Michigan Consumers Co. This line now has daily output of about 2,000,000 feet to eight industries.

The Muskegon Pipe Line Co. purchased an additional supply of gas from the Shoup Oil & Gas Co. The Shoup company has two dry gas wells on a 31-acre lease, NW NW Section 8-10-16. Both have been tied into the pipe line. The Muskegon Pipe Line Co. now has a daily output of about 5,000,000 feet, all of which is being used by the Central Paper Co.

The Muskegon Traction & Lighting Co. also has tied in to Balch & Balch's No. 1 on the Muskegon County tuberculosis sanatorium property, SW NW Section 8-10-16. The company, which supplies the domestic consumers of Muskegon and Muskegon Heights, has an average daily output of about 1,000,000 feet. Purchase of the entire natural gas output of the field is being considered by the Inter-Continent Gas Holding Corp. of New York, according to reports.

CARBON BLACK EXPORTS

NEW YORK, Jan. 26.—Carbon black exports for 1928 are running far ahead of previous totals, with indications of total foreign shipments for the year being considerably more than 50 per cent ahead of those for 1927. Exports for the entire year 1927 were 54,430,811 pounds, valued at $4,599,734, while in 1926 a total of 39,210,389 pounds, valued at $3,622,907, were shipped abroad. The sharp gain in export totals is attributed in large measure to the increasing use of carbon black in rubber tire manufacture abroad.

COLUMBIA GAS ACQUIRES LINE

Columbia Gas & Electric Co. is understood to have acquired the pipe lines of New York Transit Co. from Olean, N. Y., to Jersey City or Bayonne, N. J., and also to Binghamton, N. Y. Columbia is already using part of the line from Wellsville, N. Y., to Olean, N. Y., piping natural gas from the newly discovered field in Allegheny County, N. Y.

CENTRAL STATES EXPANSION

Work has been started on a 6-inch gas transmission line from Elk City to Carter, Okla. The line is being constructed by the Central States Power & Light Corp., which distributes gas in Elk City. Improvements in the gas distribution system at Elk City will call for an expenditure of $150,000 during the next few months, according to C. V. Cluen, district manager.

PEASE VALLEY EXTENSION

VERNON, Texas, Jan. 26.—Refinancing of the Pease Valley Gas Co., in which the capital has been increased from $10,000 to $100,000, and incorporation of the company under the name of Northwest Texas Gas Co., was announced by W. R. Stinnett of Vernon, president and founder of the company.

Additional lines will supply gas for Avoca, Leuders, McCaulley, Sylvester, Royston and Tuxedo. The extensions will cover about 70 miles. The company is now supplying gas for Rayland, Parsley Hills, Lockett, Farmers Valley, Odell and Medicine Mound.

GAS LEADING FUEL

Major Alexander, managing director of the American Gas Association, in an address at the natural gas meeting at Shreveport, La., said: Figures on the fuels of the country show that gas was the leading fuel in 1928. Sales of crude petroleum increased 1 per cent, coke 2 per cent. Bituminous coal was off nearly 5 per cent. Anthracite coal was off more than 5 per cent, while the use of natural gas alone increased 3½ per cent.

CALGARY GAS SUPPLY

CHATHAM, Ontario, Jan. 26.—Calgary in December was receiving around 20,000,000 feet of gas a day from the Turner Valley Field, supplying the entire demands of the city so far this season. With an enlarged scrubbing plant connected with three pipe lines, the field can deliver 55,000,000 feet a day to the Canadian Western Natural Gas Co. system, or about 13,000,000 feet more than last winter's peak load. Till the end of December the highest peak was around 30,000,000 feet.

PACIFIC COAST PURCHASES

NEW YORK, Jan. 26.—Extension of the holdings and activities of Union Utilities, Inc., into Pacific Coast territory through the acquisition of a group of gas properties in Oregon, Washington and Idaho was revealed in the announcement of the organization of Northwest Cities Gas Co. This company, all of whose capital stock will be owned by Union Utilities, Inc., will own and operate the gas manufacturing and distributing systems in the cities of Astoria and Pendleton, Ore.; Walla Walla and Yakima, Wash., and Lewiston, Idaho.

The operations of the Northwest Cities Gas Co. will be placed under the direction of Union Management & Engineering Corp., which now directs under contract the operation of the Texas Cities Gas Co., Council Bluffs Gas Co., Guthrie Gas Co., Memphis Natural Gas Co. and Ohio Valley Gas Corp. and has contracted to operate the Ohio Kentucky Gas Co.

GALVESTON DECISION ORDERS GAS FURNISHED

GALVESTON, Tex., Jan. 26.—Galveston secured a ruling to compel the Texas Cities Gas Corp. to distribute natural gas here when Special Judge W. S. Hunt of Houston rendered a decision in favor of the city.

Judge Hunt ruled that a writ of mandamus should be granted requiring the respondents to furnish natural gas to consumers in 60 days, or in such time as it may appear to the court that the necessary changes in appliances shall be made. Notice of appeal was given by the company.

The company has had natural gas in the city for nearly nine months but has refused to furnish it to consumers pending an adjustment of the rate controversy. It is asking for a rate of $2.29 for the first 1,000 feet while a city ordinance calls for a rate of $1.25 for the first 1,000 feet. Artificial gas is being used at the old rate of $1.45 per 1,000 feet.

Judge Hunt declared that a public utility was impressed with a public duty, limited by the rule requiring a fair and adequate return, and in this instance it was the duty to furnish natural gas, and if the rates fixed by the city or railroad commission are inadequate the courts will protect it.

The judge declared it was neither just nor equitable for the citizens to be deprived of the benefits of cheap fuel pending the appeal of the company to the railroad commission. About two years ago, the Galveston Gas Co., oldest artificial gas concern in the State, applied for new franchises. The original franchise was a state charter and it held no special sanction from the city. It was announced that natural gas would be brought into the city. The franchises were granted and the name of the company changed to the Texas Cities Gas Corp. with Texas headquarters at Dallas. F. M. Lege is president. The company owns several other gas concerns in Texas. Natural gas was brought into the city from Texas City Junction, where the Houston Natural Gas Co.'s main was tapped. A pipe line costing $300,000 crossed Galveston Bay near Virginia Point. The company then announced that natural gas rates would be $2.29 for the first 1,000 feet. Opposition developed and recently several civic bodies have urged a municipal gas plant.

The company appealed to the State Railroad Commission from the rate set by the city, which appeal is pending. Meanwhile the company continued to furnish artificial gas at $1.45 per 1,000 feet.

The city then initiated proceedings for a mandamus to compel the gas company to comply with the ordinance. Judges Dibrell and Canty disqualified themselves as potential users of natural gas and Judge Hunt was named by agreement.

Just before it became known that Judge Hunt would make known his decision, the company initiated a move for a revised schedule, to be based on a survey of the property. This is now under consideration by the city officials.

MEMPHIS GAS DISTRIBUTION

H. G. Scott, president of the Union Utilities Co., announces that the Memphis Natural Gas Co. has turned on natural gas at Memphis. Gas is also being served to Cleveland, Tunica and Greenville, all in Mississippi, and on February 15 to Bonita, La. The gas in Memphis is being distributed through Memphis Power & Light Co., the gas in Mississippi through the Mississippi Power & Light Co., and the gas in Louisiana through the Louisiana Power & Light Co.

NEW COKING PLANT

CHATHAM, Ontario, Jan. 26.—Announcement has been made at Buffalo, N. Y., by S. B. Severson, vice president and general manager of the Dominion Natural Gas Co. that his company will establish a coking plant on the Canadian shore of Lake Erie within 18 months. The statement followed a conference between gas company officials and representatives of St. Thomas and Port Stanley.

The Dominion Natural Gas Co. supplies natural gas from both the Niagara and Tilbury Fields to Ontario communities. It is understood the output of the proposed new plant will supplement the natural gas supply. A previous proposal to build a $2,000,000 coking plant at Port Stanley was dropped when St. Thomas defeated a proposal for the sale of the municipal artificial gas plant to the Dominion company. Location of the new plant will be determined after a survey of harbor facilities.

GAS SEVENTH IN FIRE LOSS

Manufactured and natural gas create lower fire losses in the United States than almost any other cause, according to the report on the public utility industry, based on a survey compiled by the actuarial bureau of the National Board of Fire Underwriters.

"In a list of 22 causes for fires over a five-year period in the United States, manufactured and natural gas ranked number seven," the survey shows. "Gas does not show one-seventh of the fire losses caused by matches and smoking. The greatest fire losses are attributed to 'unknown causes.' Next in order come high risk exposure, including conflagrations, matches and smoking, electricity, stoves, furnaces, boilers and piping, defective chimneys and flues, spontaneous combustion, lightning, sparks on roofs, sparks from machinery, petroleum and its products, miscellaneous known causes, sparks from combustion, open lights, hot ashes and coal, open fires and then gas."

DEVELOPMENT DEPARTMENT

F. F. Schauer, general manager of the Equitable Gas Co., a subsidiary of the Philadelphia Co., has announced the inauguration of a system development department to have charge of all gas engineering, planning and research activities of the combined companies in Pittsburgh., Pa.

E. P. Hartson has been appointed superintendent of the new department. Mr. Hartson joined the Equitable Gas Co. in 1920 after eight years' experience with the United Gas Improvement Co. in Philadelphia. Since his affiliation with the Equitable company he has held the positions of distributing engineer, gas engineer and superintendent of production and transportation.

LINE TO ARANSAS PASS

Moran & Co. of Shreveport, La., have started construction of a 6-inch line for natural gas from the White Point Field in San Patricio County to Aransas Pass. Franchise was granted by the city of Aransas Pass January 10 and construction of the line was started January 14. The line will be 15 to 18 miles long and will eventually extend to Rockport, another 5 miles.

Moran & Co. has the contract to supply natural gas to the Humble Oil & Refinery at Ingleside, past which the line will run en route to Aransas Pass. The line in addition to being extended to Rockport will, it is understood, be extended to Port Aransas, where an industry that will consume a great deal of gas is to be erected.

WHAT IS THE COST?

Messrs. Construction Engineer & Purchasing Agent:

The average welding unit employed in America consumes approximately 2,000 cu. ft. of Oxygen and a similar amount of Acetylene Gas per month. At the average rate of delivered Oxygen and Acetylene Gas prices, this means in excess of $1,000.00 per year. Victor Torches have an established record of saving over 20% in gas consumption per job, and this means a minimum saving of $200.00 per outfit per year. These are facts and not fancies.

To operate any welding unit implies an additional expenditure for welders' wages. Since Victor Torches and Regulators function properly under any and all working conditions, do not back-fire, are constantly on the job, and are liked by the welder, time is saved, repair and maintenance costs are reduced, and better welding results. Several very large Victor users have advised us that their Victor Apparatus reduced welding time by 30% and maintenance cost by 60%. That means something very tangible in dollars saved, in increased production, and in greater operating efficiency.

IF THE PRICE OF VICTOR TORCHES AND REGULATORS WAS TWICE AS HIGH AS IT IS, IT WOULD STILL BE PROFITABLE FOR YOU TO PURCHASE VICTOR APPARATUS, WHICH HAS SERVED THE LARGE REFINERIES, OIL AND PIPE LINE INDUSTRIES HERE AND IN FOREIGN FIELDS FOR OVER SIXTEEN YEARS.

No matter what apparatus you are using today, these facts are worthy of your consideration and investigation.

We have competent representatives in Portland, Ore., San Francisco and Los Angeles, California; El Paso, Dallas, San Antonio, Houston and Beaumont, Texas; Tulsa, Oklahoma, St. Louis, Mo., and Kansas City, Missouri. They are ready to confer with you and to demonstrate.

Write for our new and complete Catalog TODAY—you will want it for reference, because substantial savings in operating cost are of true interest to your Company.

Yours very truly,

VICTOR WELDING EQUIPMENT CO.

By E. L. Mathy,

Vice Pres. & Director of Sales.

844 Folsom Street,

San Francisco, Calif.

MEN KNOWN IN OILDOM

Charles C. Ross

Charles C. Ross, supervisory mining engineer of the Department of the Interior, Ottawa, Canada, has been connected with that department for the past 16 years. He has seen the development of the petroleum and natural gas resources of western Canada grow from its early stages to its present position of promise and it is to no small degree due to his wise administration and helpful suggestions that the petroleum industry in the province of Alberta was piloted through the difficult times prior to the bringing in of the Royalite Oil Company's No. 4 in the Turner Valley Field.

Mr. Ross is in charge not only of the petroleum and natural gas developments in the provinces of Alberta, Saskatchewan, Manitoba, and the Northwest territories and the Yukon, which are under the control of the Dominion government, but also of metal mining and coal mining. His responsibilities also extend to the Peace River block, of which a great deal may be heard in the years to come.

Largely under his guidance, the oil and gas regulations of the Dominion government have been adapted to the problems peculiar to the above-mentioned provinces and territories. The confidence established among the operators is in no small measure due to the work of Mr. Ross and his staff.

Mr. Ross was educated at McGill University, graduating with the degree of B.Sc. He is well remembered at McGill as one of the star athletes of the university. He is a member of the Engineering Institute of Canada, the Canadian Institute of Mining and Metallurgy and of the Professional Engineers of Alberta.

PERSONAL PARAGRAPHS

Edwin B. Hopkins, petroleum geologist, sailed on the S. S. Caracas for Venezuela.

* * *

Paul T. Putnam, sales manager of the W-K-M Manufacturing Company, of Houston, Tex., was in Tulsa last week.

* * *

Rodney De Lange, independent operator of Fort Worth, Tex., has returned after an extended trip through West Texas.

* * *

H. Cannon, sales manager of the Root Refineries, Inc., of Shreveport, La., spent several days last week on a trip East.

* * *

W. Armstrong Price, consulting geologist at Houston, Tex., has been away from his office and confined to his home because of illness the past 10 days.

R. S. Sterling, of Houston, Tex., has been confined to his hotel at Austin with influenza.

* * *

John G. Bartram, Midwest Refining Company geologist, visited the Casper, Wyo., offices of the company from Denver, Colo.

* * *

Otto L. Morris, independent operator of Fort Worth, Tex., is going to New York on an extended visit to join George A. Henshaw.

* * *

Frederick G. Clapp has made recent trips to England and Switzerland and has returned to Paris where his family is spending the winter.

* * *

W. H. Wallace, formerly chief clerk of the Empire Oil & Refining Company of Bartlesville, Okla., is now with the Tulsa Rig & Reel Manufacturing Company.

* * *

M. J. Flanagan, of the Gaso Pump & Burner Company of Tulsa, is enjoying a vacation in the sunny climate of Florida. He is accompanied by Mrs. Flanagan.

* * *

Talbot C. Wildman, president of the Wildman Petroleum Company, spent a few days in Tulsa last week, and has returned to his home in Fort Worth, Tex.

* * *

E. Jablonski, geologist for the Vacuum Oil Company, has been transferred to the San Antonio, Tex., territory and has opened an office in the Travis Building in San Antonio.

* * *

Charles Davis, sales representative of the S. R. Dresser Manufacturing Company, of Bradford, Pa., is in the Texas fields after completing a trip over the Louisiana-Arkansas territory.

* * *

E. B. Reeser, president of the American Petroleum Institute and of the Barnsdall Corporation, is in California, having made the trip from New York with a two days' visit in Tulsa.

* * *

M. J. Grogan, vice president and general manager of the Louisiana Oil Refining Corporation at Shreveport, La., was called to New York last week for a conference of company executives.

* * *

Carl Wiedeman and W. M. Slagle, Cleveland, Ohio, and of the Cumberland Petroleum Company, are looking over their company's holdings in Ohio, Daviess and other parts of western Kentucky.

* * *

L. S. Clough, of Warren County, Pennsylvania, and president of the Jetsan Oil Company, operating in the western Kentucky fields, has returned to Owensboro, Ky., after spending some time at his home.

* * *

P. F. Shannon, who was professor of petroleum engineering at Colorado School of Mines, Golden, Colo., has accepted a position with the Tropical Oil Company and has gone to Colombia, South America.

* * *

Hugh F. Stewart, director of the Farmers & Merchants National Bank of Los Angeles, has been elected to the executive committee of the board of directors of the Italo Petroleum Corporation of American recently.

* * *

Mr. and Mrs. Ernest Marquardt of Los Angeles, Calif., are spending the winter months in Paris, France. They formerly lived in Casper, Wyo., Mr. Marquardt being vice president and chief geologist for the New York Oil Company.

* * *

G. R. Hopkins, petroleum economist with the Bureau of Mines, Washington, D. C., spent several days last week visiting points in the Mid-Continent area. His visit included Bartlesville, Okla., where a station of the Bureau of Mines is located.

* * *

J. A. Geiger, Winchester, Ky., superintendent of the Cumberland Pipe Line Company, J. H. Carney, director, P. H. Leonard and W. H. Keffer, assistant superintendent, all of the same company, stopped off in Pittsburgh, Pa., en route to Oil City, Pa., where they attended the annual meeting of the Eureka and Southwest Pennsylvania Pipe Line Companies.

Chester Naramore, for the past eight years with the Sinclair Consolidated Oil Company, is now vice president of Pettigrew & Meyers, investment brokers, of New York. He is spending some time in the Mid-Continent Field with Joseph Meyers.

* * *

George A. Shaner, formerly chief chemist for the Carter Oil Company, is now assistant to George E. Edgett, general superintendent of the natural gasoline department, replacing John J. Hill, who resigned to become an official of the Spartan Aircraft Company, of Tulsa.

* * *

H. H. Anderson, chief production engineer for the Shell Petroleum Corporation, at Los Angeles, Calif., will remove his offices to the San Francisco Bay district. His resignation as chairman of the Los Angeles section of the American Society of Mechanical Engineers, recently was announced.

* * *

Traveling in a special car, President D. J. Moran and officials of the Marland Production Company, have been in West Texas on a tour of the company's properties. The inspection took in Howard, Crane, Upton, Pecos, Winkler and other producing counties, terminating in southeastern New Mexico.

* * *

Roy E. Leigh, formerly with the Louisiana Oil Refining Corporation at Shreveport, La., but now with the Trinidad Oil Fields, Inc., on Trinidad Island, spent a few days visiting his old haunts in Shreveport before leaving for Houston, from where he is to start on a tour of the oil fields of the world.

* * *

Oscar Reynaud, scout for The Texas Company at El Dorado, Ark., for the past several years, has been transferred to Baton Rouge, La., from where he will scout the salt dome country east of the Atchafalaya River. He is succeeded at El Dorado by F. R. Coryn, transferred from the Shreveport, La., general offices.

* * *

Frank McCarty, for six years chief engineer of the Producers & Refiners Corporation in Wyoming, has been made general manager of the Uinta Pipe Line Company which will lay the gas line from the Baxter Basin and Hiawatha Dome in the fields in southwestern Wyoming to Salt Lake City, Ogden, and points in Idaho.

* * *

Clyde M. Bennett, general manager of production for the Vacuum Oil Company, W. B. Sutton, manager for the southwestern division, and W. C. Thomas, assistant manager and manager of production and drilling in the southwestern division, have been spending several days in southern Louisiana looking over the company's holdings.

* * *

Raymond Ford, Houston, Tex., district manager of the Williamsport Wire Rope Company, and Mrs. Mollie C. Hamer, secretary to Adrian Moore, vice president and general manager of Rycade Oil Corporation, were united in marriage January 19. Mr. and Mrs. Ford are on a two weeks' honeymoon, part of which is being spent in New Orleans, La.

* * *

R. C. Holmes, president of The Texas Company, W. S. S. Rodgers, vice president in charge of sales, and R. Ogarrio, vice president in charge of production, after a week spent in the Gulf Coast, have left Houston, Tex., for California where the company's holdings are to be inspected. F. T. Manley, vice president in charge of refineries, accompanied the party as far as El Paso, Tex., where he stopped to look over the refinery being constructed there.

* * *

Silas M. Newton, of New York City, has been in San Antonio, Tex., in connection with the negotiations for the purchase of the Grayburg Oil Company. Associated with Mr. Newton is John W. Choate who built the Choate refinery at Oklahoma City. The purchase of the Grayburg property, it is understood, is by the Indiana Oil & Gas Company of which Mr. Newton is the president.

* * *

Maj. John C. Townes, general counsel of the Humble Oil & Refining Company, was entertained at a farewell banquet at the Lamar Hotel, Houston, Tex. Mr. Townes, who has been connected with the legal department of the Humble Oil & Refining Company for years, has resigned to engage in personal practice. Mr. Townes is a brother of E. E. Townes, chief counsel for the company.

Field Problems and Their Solution

EDITED BY THOMAS F. SMILEY

In order that men connected with the drilling, producing and transporting branches of the petroleum industry may procure quickly a solution of many problems confronting them from time to time in their work, The Oil and Gas Journal has arranged with leading engineers and other recognized authorities to answer questions submitted by readers of this publication pertaining to the work of drilling and producing crude oil and transporting this product.

Everyone is invited to submit questions freely. These questions will be submitted to proper authorities by Mr. Smiley, who edits the page, and answers, based on the best available information, will be published. Each question should give as much detail as possible, especially where it relates to matters where depths of sands, types of sands and operations on adjoining properties would have a bearing on the problem involved. The source of all questions will be considered as confidential and only initials will be published in connection with the question.

In this connection, The Oil and Gas Journal will be glad to publish articles from field men who have devised new methods or practices which are improvements.

In case an immediate answer is important, one will be given by mail if the writer requests it.

"BOTTLING" A WELL

I am a driller working in the St. Louis Field. The other day an engineer of the same company I am working for said he was going to have a certain well bottled. What did this engineer mean? How can a well be bottled and what is it bottled for?—T. G. M.

It is becoming rather general practice in some fields to determine how much or at what angle the wells deviate from vertical. One method of doing this is to put hydrofluoric acid in a glass bottle and then put the bottle in a suitable cylindrical container, making sure that the bottle is held in a position parallel with the walls of the container. The container is then fitted snugly in a bailer or a sand pump which is run to the desired depth where it is held long enough for the acid to etch a line on the glass, thus showing the position that the level surface of the acid assumed in the bottle. This indicates the angle at which the bottle stood in the well and consequently indicates the angular deviation of the well from vertical at that depth. This is sometimes spoken of as "bottling" the well.

By determining the angular deviation from vertical every 500 feet or so in depth, it is possible to calculate the correct vertical depth of a crooked hole. It is also possible to tell by this method whether a drilling well is going straight or crooked.

Some of the oil companies are now plugging back drilling wells with cement and redrilling to make the wells straighter when they find that the drilling wells are crooked enough to cause future production troubles.

The bottle method does not indicate the direction of deflection, nor does it enable the operator to calculate the horizontal distance that the well drifts away from the starting point.

FLOATING IN CASING STRING

Will you kindly advise us by mail, at your early convenience as to what is the proper and safe way of floating in a long string of casing?

Is the plug or disc perforated, that is, does it have one or two small holes, or should it be water tight? If not water tight the fluid will rise almost as high inside the pipe as it is outside, even if there is only a small hole in disc, especially if any short delay occurs, or even while the pipe is hanging in the spider waiting for the next joint to be stabbed and bucked up. This being the case the string would have little more buoyancy after say 3,000 feet of pipe has been run, that it would after just a few joints have been put in. It would seem to us this buoyancy should increase as the string gets heavier.

We are wondering, for this reason, what the best practice is, say in California, and if it is feasible to use a water tight disc. We can readily see that even a perforated disc would be of advantage in case the string were to drop, but it does not seem that this would take very much weight off the rig while running a string in slowly.—G. H. T.

Modern practice in floating in long strings of casing has gone almost entirely to the use of the various patented float-plugs and float-collars. An instructive booklet on this subject is being sent to you by this department. It is not considered good practice to use perforated discs that allow the fluid to rise in the casing as described by you. Modern float plugs and float collars are often perforated and equipped with float valves that allow either fluid or cement to pass downward and out of the casing but do not allow any fluid or cement to come back into the casing. If it is desirable to put fluid into a string of casing to sink it or to prevent it from collapsing, this is done through the top of the casing.

It is now common practice to use a float shoe on the bottom of a string of casing being floated in and to use a float collar one or two joints above the float shoe. Then when the casing is cemented in the well a plug of rather poor cement, which otherwise would take the most important position around the shoe of the casing, is left inside the lower part of the casing between the float shoe and the float collar. This cement plug and the float plug and float collar are then drilled out after the cement has set thoroughly. It is believed that you will obtain what further information you need from the booklet that has been sent to you, but this department will be glad to answer more questions on the subject if there are any you would like to ask.

MINING FOR OIL

Has the mining method of recovering oil been tried with success in the United States or elsewhere? Is it regarded seriously as a probable means of getting oil from the ground at any time in the future?—N. L. G.

Mining of oil sands 35 to 220 feet deep was carried on with success by French operators in Alsace from 1835 to 1865. In 1916, under the spur of war, these operations were resumed along new lines which have been fully described in a paper, "Mining Petroleum in France and Germany," by George S. Rice and J. A. Davis, published in "Petroleum Development and Technology in 1925," by the American Institute of Mining and Metallurgical Engineers, New York. More than twice as much oil was reported to have been obtained as by the ordinary drilling method. About 1865 tunneling for oil was undertaken in California with a measure of success. A shaft sunk at Petroleum Center, Pa., about the same time was a failure. In 1921, D. W. R. Kinney began sinking a concrete-lined shaft in Estill County, Kentucky. He reached the sand at a depth of 135 feet and got 4 or 5 bbls. a day.

Several shafts have been sunk to shallow oil sands in Texas and one successful oil mine was operated by Capt. Leo Ranney in that State several years ago. John L. Rich of Ottawa, Kans., has also conducted extensive experiments and studies in oil mining and has originated a method of producing oil by mining.

A bibliography giving a complete list of references to publications on oil mining can be obtained without charge from the Technical Librarian, Tulsa Public Library, Tulsa.

While the recovery of oil by mining methods has been inconsequential up to the present time, it is looked upon by petroleum engineers as a probable means to be adopted when other expedients to extend the recovery beyond the present 20 per cent or so have been exhausted. The Ranney Oil Mining Co., a subsidiary of the Standard Oil Co. of New Jersey, is actively preparing to start oil mining operations in the United States and it is interesting to note the engineers of this company have estimated that they can produce oil cheaper by their improved methods than it can be produced by small pumping wells.

AS TO ULTIMATE PRODUCTION

I would appreciate it very much if you would kindly refer me to that issue of The Oil and Gas Journal (I think during 1928) which gave the amount of ultimate recovery per acre of oil in several old pools of the Mid-Continent territory. Or if this request requires more time than is proper to give to individual inquiries, would you refer me to another source for the information?—G. R. E.

It is believed likely you refer to an article by James McIntyre on "Only Few Pools Show Increase in Production Over Last Year," which appeared in The Oil and Gas Journal, page 38, August 2, 1928. If you find this is not the article you mean, perhaps you can describe a little more in detail the one for which you are searching.

NAME AND ADDRESS LACKING

This department has received an undated and unsigned communication stating that the writer of it has wells producing oil and gas from depths of 800 to 1,200 feet, the sand being approximately 60 feet thick but separated into two strata by a 30-foot break. The lower stratum of the sand produces most of the gas and the upper one most of the oil. The writer of the letter asks if there is a way of determining the proper fluid level compared with rock pressure to prevent the gas stratum from absorbing the oil from the upper stratum. An answer to this question will be provided gladly if the sender of it will write again, giving his name and address. These of course are not desired for publication, but this department wants to know the identity of the persons whom it tries to help.

The name and address are lacking also in a communication apparently written from Pyland, Miss., asking if it would be advisable to drill deeper in the hope of finding oil when salt has been encountered at a shallow depth on what looks like a natural structure along a fault, when it is known there is a big lime to go through. Will the writer of the inquiry kindly send his name and address?

MEANING OF "FATIGUE"

I see the terms "metal fatigue" and "rod fatigue" used a good deal. Their meaning is not clear to me. I would like to have you explain just what they mean. I take it they indicate a sort of deterioration.—D. E. D.

Sucker rods are subjected to extremely severe wear and tear even under the most favorable conditions because of the frequent reversal of strains which may occur as many as 36,000 times a day, depending upon the frequency of the strokes and the pumping period each day. Whipping, snapping, and vibration of rods add to this wear and tear which causes weaknesses to develop at various points and leads to the failure of the rods.

This is the result of so-called rod fatigue. The metal suffers loss of strength to a point beyond which it cannot go and it breaks. Fatigue failures have been defined in the bulletin of the D & B Pump & Supply Co. as "failures caused primarily by the effects of alternating stresses which are generally of a magnitude much below the actual elastic limit of the metal."

Various theories have been advanced to explain metal fatigue. One of these, the crystallization theory, involves the recrystallization of the steel. The amorphous theory recognizes the existence of amorphous or noncrystal in solid matter in metal. Amorphous films are supposed to form between the constituent crystals, thus weakening the structure. Still another theory pictures the accumulation or storage of stresses in the metal until the total becomes so great as to cause failure. Whatever the causes may be, the fact remains that the conditions under which sucker rods are used causes them to undergo metal fatigue and failure.

WHIPSTOCKING A WELL

There seems to be a lot of talk about whipstocking. I do not know just what whipstocking means. Can you tell me what a whipstock is and how, where, when and why it is used? What is meant by oriented whipstocking?—J. A. H.

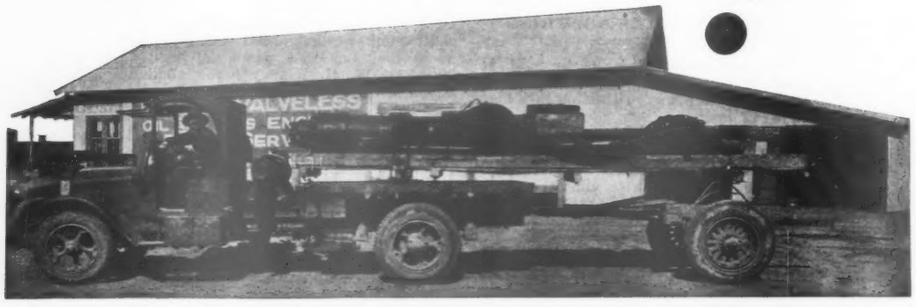
Whipstocking is a method used either to change the course of a drilling well or to drill through casing. It is often used to drill through casing to get shallow production that was cased off when the well was drilled to some deeper formation.

A whipstock usually consists of a steel plug about 20 or 30 feet in length and of slightly less diameter than the casing in which it is set. The upper end of the steel plug is beveled like the mouthpiece of a boy's whistle so that it will deflect the drill bit to one side of the hole. The whipstock must be hard enough to prevent its being drilled up. It must also be set securely enough to prevent its being dislodged or driven down the hole. The usual method is to bridge the hole, placing a cement plug above the bridge and resting the whipstock on the cement.

Oriented whipstocking refers to setting the whipstock with the beveled edge slanting so as to deflect the bit in the desired direction. If the bit is to be deflected in a northerly direction, the beveled face of the whipstock will face north thus deflecting the bit to the north. Some engineers assert that they have done this whereas others declare that it can not be done with any certainty of success. The subject is being widely discussed and thought about by engineers and production men.

FRANKLIN VALVELESS

All Aboard!



The Entire Franklin Engine is Easily Moved on one Truck Load—

One truck—that's all. And no overloading or straining of the truck.

The Franklin Engines are not bulky. Good material and scientific design give the Franklin Engine greater strength without useless weightiness.

And loading the Franklin is as quick and efficient as a military movement. The few parts necessary to remove for loading, come off easily, and are quickly assembled after unloading.

Yet, the best part of the Franklin is that you've got something when you get it set up. The simplicity of the mechanism, and the small quantity of fuel and water needed, join to make the Franklin Engines the best buy for power.

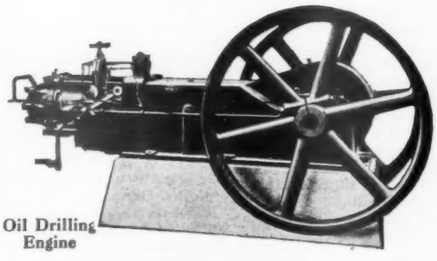
FRANKLIN VALVELESS ENGINE COMPANY
Franklin, Pa.

OIL WELL SUP

Branches

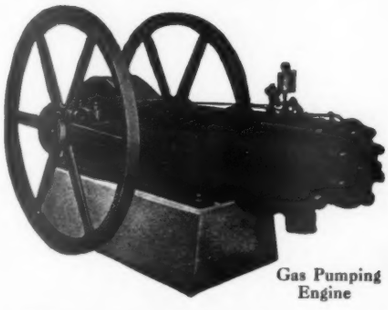
S OIL AND GAS ENGINES

The FRANKLIN Engines



Oil Drilling Engine

New type of oil drilling engine for western and mid-continent service. An engine combining ample power, simplicity, quick starting, low fuel and lubricating cost.

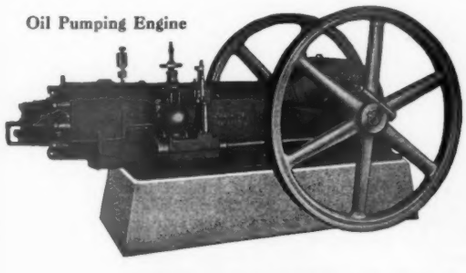


Gas Pumping Engine

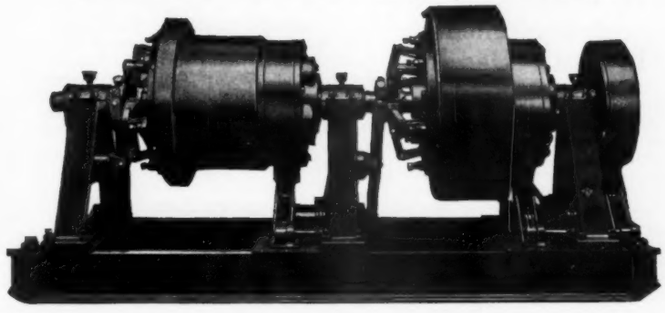
Franklin gas pumping engines are light, economical and powerful. They are interchangeable on the same block as gas drilling engines.

After you have finished drilling, move in one of these Franklin Pumping Engines. These pumpers come in 30, 40, 50 and 75 horsepower.

Oil Pumping Engine



Many Features Put FRANKLIN'S NEW LINE far Ahead of Old Style Clutches



Features of the 2 SD Drilling Clutch

Two speeds in either forward or reverse—all bearings enclosed—run in oil or grease.
All brake band and clutch discs adjusted without stopping the engine.
All brackets, bell cranks, toggle arms, brake cranks, levers, driving discs, spiders and sliding sleeves made of steel.
All similar parts of clutch interchangeable.
Belt driven—no shaft breakage.
The 2 SD Clutch will pull the largest bailer without faltering.

Type BG for Cable Tool Drilling, etc.

Here is a clutch that will operate satisfactorily and smoothly for cable tool drilling or for pumping operation. The BG Type has one speed forward and reverse. It is much the same construction as the 2 SD clutch.

FRANKLIN VALVELESS ENGINE COMPANY
Franklin, Pa.

Distrib By
UPPLY COMPANY
hes Oil Fields
XUM

EQUIPMENT AND SUPPLIES

Oil Well Drilling Control Equipment Is Easily Handled

The General Electric Co., Schenectady, N. Y., announces a complete control equipment designed for the heavy duty requirements of rotary drilling of oil wells. The new equipment, which utilizes magnetic control, consists of a primary and secondary magnetic panel, a special resistor, a fused safety enclosed entrance switch, a master switch, a current transformer and an ammeter. All this equipment except the ammeter is mounted on angle iron framework and is completely wired before shipment. The framework is so designed and braced that it can be handled as a unit in the oil fields.

The base of the frame is built with parallel angle iron skids turned up at the ends and provided with holes by means of which a cable can be attached to pull the unit in or out of the motor house. Eye-bolts are provided also to facilitate handling.

The new control equipments are designed for 150-horsepower, 440-volt, slip-ring induction motors. The panel has 10 control points. The primary is handled by mechanically interlocked, triple-pole, reversing contactors of 300 amperes capacity. The first four accelerating contactors are triple-pole, of 75 amperes capacity, with the poles delta connected across the resistor. The next four contactors are double-pole, of 150 amperes capacity, each provided with a "ticker" type of time-limit relay. These relays are set for the same time delay with the exception of the one controlling the contactor giving maximum starting torque, and this is set for a 50 per cent longer delay.

Thus the motor is given time to start the heaviest load of which it is capable, or to exert maximum torque long enough to determine definitely whether it will start a string of "frozen" casing or break loose a bit which is stuck in the hole. The last contactor is a double-pole, 300-ampere unit.

The panel is equipped also with a standard temperature overload relay and with an undervoltage contactor actuated by a contact in the "off" position of the master switch.

An important feature of the new control, according to the manufacturers, is the use of automatic time delay during accelerations. This prevents the driller from injuring the motor and control by abruptly moving the controller around to the full speed point to "open the throttle wide." On the other hand, it enables him to obtain consistently rapid acceleration without being held up on an intermediate control point, even though a high current peak results. He is also sure of getting maximum starting torque from the motor if necessary without the inconvenience of running by the control point which gives it.

"Ticker" relays are not used on the first few control points, being unnecessary because relatively large blocks of resistance per step are used. The first two control points cut in or out a large block of resistance used to obtain low running speeds at light loads such as are needed for idling the drilling bit off the bottom of the hole. At such times, because of the settling of mud around it, the drilling bit might become "frozen in" if the motor were stopped for a short period.

CATERPILLAR PRICES DROP

The Caterpillar Tractor Co. has put into effect a new set of prices that mark not only a reduction of $175 to $300 per unit, but an adjustment between basic cost and midwest factories.

OPENS BRANCH IN MERKEL

The Hercules Supply Co., Fort Worth, Tex., has opened a branch store in Merkel, Tex., to serve the oil fields of Jones, Fisher and Taylor Counties. Harry Cookston, formerly in charge of the company's store in Wink, Tex., will manage the Merkel store, which will handle oil and gas well supplies, pipe, casing, cable tools, etc.

COMPANIES CHANGE NAMES

The names of the domestic subsidiaries of the International Cement Corp. have been changed to the Lone Star Cement Co. of the state in which each company is located, according to a statement issued by H. Struckmann, president of the International Cement Corp. This change directly identifies each company with its product, Lone Star cement, and makes the subsidiary company names uniform throughout the United States. This change affects the name of the company only. There is no change in the management, policies or products, according to Mr. Struckmann.

BUSINESS NOTES

The Griscom-Russell Co. has established an additional sales office at 433 Ellicott Square, Buffalo, N. Y.

The Amsco Sales Corp., Chicago, has opened a Philadelphia branch office and warehouse, with R. C. Gates in charge.

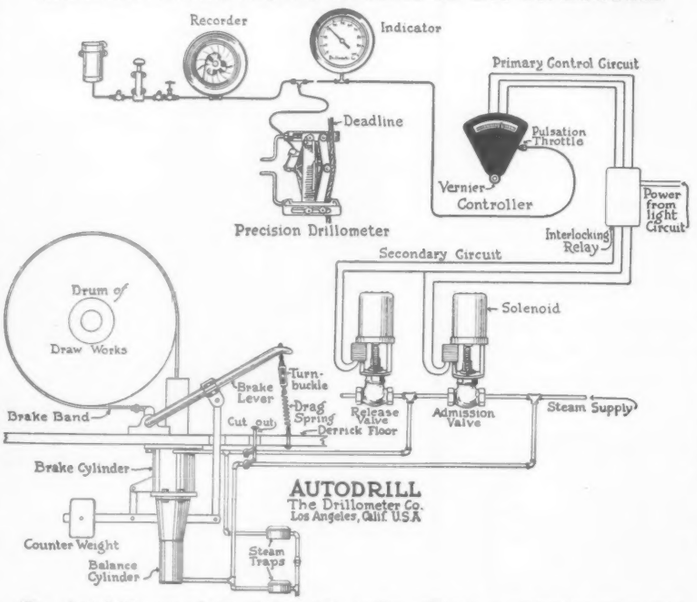
The Butler Manufacturing Co., Kansas City, Mo., and Minneapolis, Minn., held its eighteenth annual sales school in Kansas City on January 11, with about 200 salesmen, plant managers and assistant plant managers present.

The Black & Decker Manufacturing Co., Towson, Md., has reduced the price of its quarter-inch light duty drill from $28 to $25.

OPENS GULF COAST BRANCH

Alco Oil Tool Co. of Compton, Calif., has established Gulf Coast and Mid-Continent division headquarters in Houston, Tex., and is fitting up a complete servicing plant and warehouse. C. J. Hillman, who has been representing the company there, will be in charge of the division. Products of this company formerly were handled through distributers.

AUTODRILL STABILIZES WEIGHT OF BIT ON BOTTOM



The Autodrill, manufactured by the Drillometer Co., Los Angeles, Calif., is a device for automatically feeding the bit into the formation, when drilling with a rotary, in such a way that the pressure or weight of the bit on bottom remains constant. What pressure on bottom should be carried, is left to the judgment of the driller, but when the desired pressure is set on the vernier of the controller, the Autodrill keeps this constant and so exactly that there is no visible variation on the indicating or recording gauge of the Drillometer. The device is of simple construction.

The purposes of the Autodrill are to relieve the driller from the fatigue of "riding the brake," and the strain of continually staring at the indicating gauge.

Details of the construction of the Autodrill are illustrated in the accompanying cut. First comes the Precision Drillometer, the pressure transformer of which is fastened on the dead line in the usual manner. This measures the pressure of the bit on bottom. Next, the tubing of the Drillometer is connected to the controller. This is an indicating gauge with electric contacts on either side of the needle. The leads from the controller are connected through an interlocking relay to solenoid valves.

The feeding of the bit is controlled by the brake just as the driller does it, the brake being released to feed the bit and set to hold it. This is done by means of a cylinder operated with steam or compressed air. This cylinder has a large upper piston, so that when steam is put on top, the brake is set, and a small lower piston which has steam under it at all times, so that when the pressure on top of the large piston is discharged, the brake will be released and the bit will be lowered.

Pressure to the large cylinder is controlled by the two solenoid valves. One admits pressure to the cylinder and the other releases or discharges the pressure. The two valves are so connected that when one opens the other closes.

When drilling in a hard formation the Autodrill feeds very little at a time. In soft formation the feed is almost continuous.

COMPANIES LICENSED TO MAKE ENDURO KA2

While stainless iron and steels have made marked progress in the past few years in this country, their use was attended with production difficulties and they showed definite limitations in certain applications. Straight iron-chromium alloys have had the greatest application, but demand for an even better product has resulted in the addition of nickel. Alloys of this type were developed first by Dr. Benno Strauss, of the Krupp Works, Germany. The addition of nickel increases the corrosion resistance of the alloy and provides complete immunity to many materials which attack the straight stainless irons.

Stainless steel produced in this country under Krupp Nirosta patents and under the supervisory direction of Dr. Benno Strauss, will be known as Enduro Nirosta steel, the principal type being marketed as Enduro KA2.

Three companies are licensed to operate under these patents: Central Alloy Steel Corp., of Massillon, Ohio; Ludlum Steel Co., of Watervliet, N. Y.; and The Babcock & Wilcox Tube Co., of New York. Enduro KA2 is a resistant to air, water, dilute solutions and acids at high temperatures and at high pressures. It can be deep drawn, wire drawn, spun, readily machined and welded by either electricity or gas. It may be polished to a mirror surface. It is nonmagnetic.

SEPARATOR DESIGNED TO PREVENT CUT OIL

The Chancellor separator, manufactured by the Miller Combination Bailer & Pump Co., Sapulpa, Okla., is an apparatus which separates the gas, water and sand from the oil at the bottom of the hole before the oil and water are pumped. The Chancellor separator is a positive gas anchor and is attached to the bottom end of the working barrel. Through return bends the water is siphoned to the working barrel and is pumped separately from the oil. The gas is held on the outside of the tubing and passes on up the casing. These two features are designed to eliminate the cutting of oil. The sand is settled out in two traps which can be flushed clean by pulling the lower valve, which has no gas anchor attached. The separator keeps the gas out of the tubing which prevents churning of the fluid. First a head of water, then a head of oil is pumped through the tubing.

TRADE LITERATURE RECEIVED

The Curtis & Curtis Co., Bridgeport, Conn., has issued a new catalog of its pipe cutting and threading machines.

"Torsion, Impact and Other Mechanical Properties of SAE-3,130 Nickel-Chrome Steel" is the title of a paper prepared by T. H. Wickenden and published in the form of a bulletin by the International Nickel Co., New York.

The Wagner Electric Corp., St. Louis, Mo., is sending out bulletin No. 158 on small vertical motors, covering all types, in ratings of one-eighth to 1½ horsepower.

A bulletin mailed by the Sullivan Machinery Co., Chicago, describes the new Sullivan K-2 buster for breaking concrete. The company is sending out also its Road Show folder and a new edition of its bulletin on rotator hammer drills.

Specifications and construction details of the new "Caterpillar" Ten are set forth in a 32-page booklet just issued by the Caterpillar Tractor Co., San Leandro, Calif., and Peoria, Ill.

The Farrell Manufacturing Co., Joliet, Ill., is sending out a descriptive circular on the Elvo automatic automobile lift.

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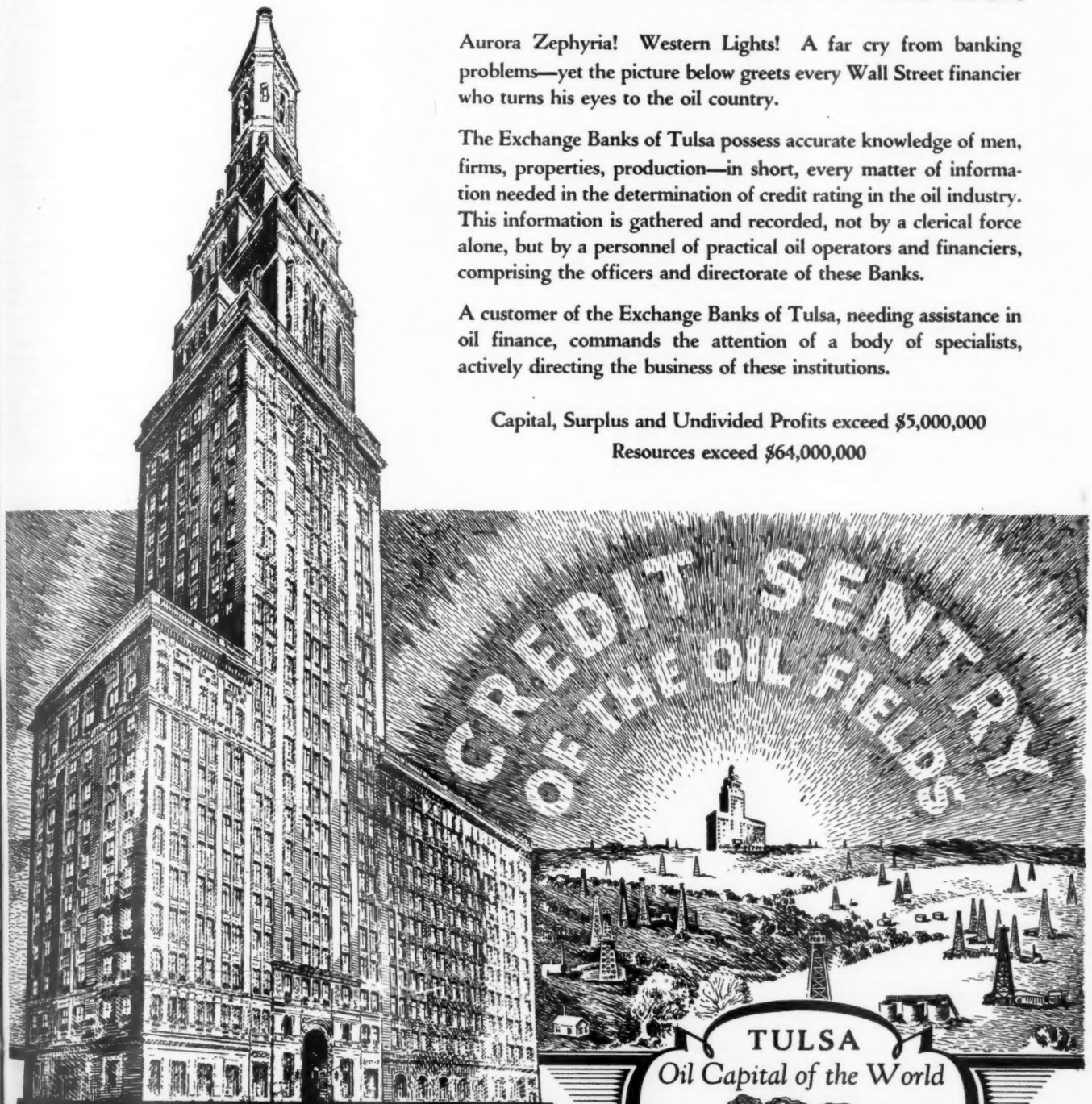

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History Making Pipe Line Building

In a Few Short Years Oil Purchasers and Producers Have Built Up a Great Oil-Carrying System in West Texas

By James H. Dameron

FORT WORTH, Tex., Jan. 28.—Reaching out into the producing counties of West Texas, the pipe line companies serving the area have built in excess of 5,500 miles of line at an estimated cost of around $150,000,000 for the complete systems to afford an outlet for this new producing area. Approximately 3,800 miles of right of way was required for the main lines.

No other oil-producing area can lay claim to such an epochal transport building program as the West Texas 1927 and 1928 program. On the other hand, no other area has been the scene of such sensational oil development, so far removed from trunk lines, railroads and inland refining centers.

Construction work in West Texas was made more impressive to the industry because of the rapidity which marked its completion and because of the isolation of the heavy flush pools. Transportation of equipment was one of the greatest obstacles to overcome. Equipment had to be hauled 50 to 60 miles in trucks and wagons and over roads the pipe line companies were compelled to build.

388,000 Bbls. Capacity

The present capacity of eight completed lines terminating at tidewater or running to inland refineries is 293,000 bbls. daily. Two major systems are now under construction and will add 90,000 bbls. to that capacity, swelling it to 388,000 bbls. daily.

It is estimated by pipe line officials that approximately 500,000 bbls. of West Texas crude could be moved from the area daily if there was an urgent demand for that much oil. Three railroads are estimated to be able to handle 800 cars daily, and figuring each car to average 200 bbls. this would total 160,000 bbls. The refining capacity of plants adjacent to West Texas producing pools is 58,500 bbls. daily, and about 75,000 bbls. of additional refining capacity is under construction.

This figure is 110,000 bbls. above the present curtailed production of West Texas, which is around 370,000 bbls. daily. With production at that figure considerable oil is going to steel storage in West Texas.

Below is given a table of pipe line companies giving the salient data of those lines, a tabulation of refining capacity in West Texas and the estimated rail outlet.

Work Nearly Complete

Only one oil carrier project is in the offing at this time and unless new and heavy flush fields are discovered no new projects are expected in the near future. United Producers Pipe Line Co., transporting subsidiary of the Transcontinental Oil Co., has surveyed for a 10-inch line to originate in the Yates Pool and terminate at tidewater at Texas City.

Building of this line is contingent upon the outcome of litigation now in Federal Court. Transcontinental company is the joint discoverer of the Yates Pool with Mid-Kansas Oil & Gas Co. The pool discoverers control about one-third of the proven territory in Yates. The Mid-Kansas company has operating control of the leases and contends the development contract made at the beginning of the partnership gives it prior right to all oil produced by the partnership. The Transcontinental Oil Co. contends that both companies have equal rights in marketing the oil produced.

In the event the Transcontinental Oil Co. gets a favorable court decision the 10-inch line to Texas City will be built. The line will be welded and will have a daily capacity of 50,000 bbls. It will cost in the vicinity of $12,000,000 and the main line will be 435 miles in length. Tentative plans call for the installation of 24 stations equipped with centrifugal pumps by motors.

Two Big Lines Building

The two main line systems now under construction are being built by the Shell Pipe Line Corp. and the Texas Pipe Line Co. The affiliated producing companies of these two transporting companies each have a big share in West Texas production.

Shell corporation's 10-inch line from McCamey station near McCamey in Upton County will terminate at the Shell Petroleum Co.'s refinery site on the Houston Ship Channel. Actual construction work on the line was started November 24, 1928. It will be welded throughout and will be 450 miles in length and will have a capacity of 40,000 bbls. daily.

Shell corporation has a line running into the Yates Pool at present, but is building a 10-inch lateral from the new line to tap Yates. The system is the second West Texas outlet for Shell corporation. The first was a 10-inch line to Healdton, Okla.

Texas Pipe Line Co. will have the longest and largest of the West Texas systems when it is completed. It will be a 12-inch welded carrier approximately 536 miles long and will have a capacity of 50,000 bbls. or more daily. Construction work was started in October, 1928, and is scheduled to be completed in early summer or late spring. The Texas Pipe Line Co. has a 6-inch line from the Hendricks Pool to its loading rack at Monahans.

This line may be taken up when replaced with 10-inch. In the event southeastern New Mexico is opened to big production the line will be extended on north to serve that area. The first main station will be at Crane and crude from Hendricks and other pools in that vicinity will be pumped to Crane through a 10-inch line. Going out of Crane the 12-inch system starts and terminates at Humble station near Houston. Fourteen stations are being erected along the line.

Humble Pioneered in West Texas

The Humble Pipe Line Co. is the largest buyer and transporter in West Texas, and was the first buyer to enter the West Texas area. That company built a 193-mile screw line from Comyn station in Comanche County to Kemper station, Section 11, Block 11, Reagan County, and about 10 miles east of the Big Lake Field. Big Lake, which was opened by the Texas Oil & Land Co., on geology mapped by Dr. Hugh Tucker, San Angelo, is generally regarded as the pool that opened West Texas to production.

Late in December, 1924, the Humble Pipe Line Co. contracted to take up to 20,000 bbls. daily from Big Lake until April 1, 1940, if the field produced that much. The 8-inch line was completed and running oil around the middle of April, 1925. Big Lake crude is the highest gravity in West Texas produced on a major scale and is the easiest oil to run.

Upon the discovery of the World-Powell Pool in Crockett County the Humble company built a 4-inch line 13 miles in length to serve that pool and it is the only line serving the pool. The line was completed in August, 1926.

The 8-inch carrier from Kemper to Comyn station, which is on the Humble company's main line system from North Texas to the coast, was the only trunk line serving West Texas until 1927. Within the last 20 months pipe line development in the Permian Basin area reached its crest with the completion and starting of 10 other main line systems and the several short systems in the fields to loading racks.

Humble company's next big expansion program was the building of a 10 and 12-inch line from Kemper station south to Ingleside harbor. This is a screw line 354 miles in length and was completed in September, 1927, with a capacity of 40,000 bbls. daily.

Illinois Pipe Line Enters Field

Increasing demand for West Texas crude prompted the Humble Pipe Line Co. to increase the capacity of the line to 55,000 bbls. by looping. Before completion of the Ingleside line the Illinois Pipe Line Co., transporting subsidiary of the Mid-Kansas Oil & Gas Co., built an 8-inch line from the Yates Pool in Pecos County to Del Rio in Val Verde County, a distance of 137 miles. The Illinois company built a 2,000,000-bbl. tank farm at Del Rio and constructed a loading rack at the same point on the Southern Pacific Railroad.

Later the Illinois Pipe Line Co. made a decision to reach tidewater with an oil line and started construction work on a 125-mile welded 10-inch carrier running east from Del Rio. This line terminated at the Humble company's Lytle station and has a capacity of 25,000 bbls. daily and was completed in March, 1928. The increase capacity to Del Rio the 8-inch line was looped. An arrangement was made with the Humble company to receive the Illinois company's shipments at Del Rio and transport them to the coast.

This necessitated the expansion of the Humble company's system to Ingleside from Lytle station and the line was looped to a capacity of 80,000 bbls. daily to care for the Humble company's own tonnage and that of the Illinois company. The Illinois company was the first transporter in the Yates Field, having built a 28-mile line from Yates to McCamey, where a loading rack was built. This line was completed in April, 1927, and during the next month it was paralleled with an 8-inch line that branched off to the east near McCamey to the Illinois company's Hurdle loading rack. At the present time the Illinois company's 6-inch line is supplying Humble Oil & Refining Co.'s McCamey refinery with crude.

Humble Pipe Line Co. continued to expand in West Texas and has much more mileage of pipe than any other company in the territory. Early in September of 1927 Humble company started running oil through its 32-mile 8-inch carrier from Yates to Kemper station. This line was looped in the late summer of 1928 and the capacity boosted to 40,000 bbls. daily.

Humble Enters McCamey

Early in 1927 Humble company entered the McCamey district with the completion of a 52-mile system from Kemper station to McCamey station. With the development of Church and Fields Pool and the Hendricks Pool, Humble company enlarged the system between McCamey and Kemper and today has three 8-inch lines feeding into two 10-inch lines on the Kemper end. An 8-inch and a 6-inch line running north to the Church and Fields Pool serves that area.

When the Hendricks Pool in Winkler County revealed itself as a big flush producer the Humble company entered that territory and has a 52-mile system running from Hendricks to Crane station. This system is composed of two 8-inch lines running approximately 38 miles of the route and 14 miles of a double 10-inch line terminating at Crane station.

Opening of the Leck area 9 miles north of the Hendricks Pool prompted the Humble to build an 8-inch system to that territory, and it is now running oil from the lone producer of the territory. Late in June of 1928 the company started gathering crude in Noodle Creek in Jones County and extended its gathering system to the wildcat producing territory north of the Noodle Creek Pool. A 4-inch line was built to the Stephens Pool in Fisher County and crude gathered in that territory is moved to the Humble com-

(Continued on Page 250)

Refineries Operating in West Texas Immediate Producing Area

Company and plant location—	Capacity
Amarillo Prod. & Ref. Corp., Pyote	3,000
Big Spring Refining Co., Big Spring	2,500
Bluebonnet Oil Ref. Co., Wickett	5,000
Col-Tex Refining Co., Colorado	10,000
Humble Oil & Ref. Co., McCamey	20,000
Midland Refining Co., Midland	3,000
Pecos Valley Refining Co., Pyote	5,000
San Angelo Refining Co., San Angelo	2,000
Superior Oil Co., Inc., Odessa	500
Sweetwater Oil & Ref. Co., Sweetwater	2,000
Tonkaway Petroleum Co., Pyote	4,000
Wickett Refining Co., Wickett	2,500
Total	58,500

Estimated Rail Outlet Capacities

	Cars daily
Texas & Pacific Railroad Co.	500
Orient Railroad Co.	250
Southern Pacific Railroad Co.*	50
Total	800

*Only one West Texas rack on Southern Pacific road.

TABLE OF WEST TEXAS PIPE LINES, SHOWING CAPACITIES, MILEAGE, ETC.

Company name, original and terminal—	Size—	Length (miles)	Capacity (bbls.)	Date Started	Date Completed
Atlantic Pipe Line Co., Midland to Atreco docks	10-in. welded	500	35,000	July 10 1928	Dec., 1928
Gulf Pipe Line Co., Midland to coast via Ranger	10-in. welded	210	25,000	April 6, 1927	June, 1927
Humble Pipe Line Co., Kemper to coast via Comyn	Two 8-in. screw	193	45,000	January, 1925	April, 1925
Humble Pipe Line Co., *Kemper to Ingleside Harbor	10 and 12-in. screw	354	55,000	May, 1927	Sept., 1927
Illinois Pipe Line Co., †Yates to coast via Del Rio and Humble company's Lytle station	One 8-in. welded	137			
	One 10-in. welded	125	35,000	July, 1927	Dec., 1927
Magnolia Pipe Line Co., Crane station to coast via DeLeon station	One 8-in. welded looped part way	220	35,000	October, 1927	Dec., 1927
Pasotex Pipe Line Co., Hendricks to El Paso	One 8-in. welded	196	18,000	March, 1928	June, 1928
Shell Pipe Line Corp., McCamey to Healdton, Okla.	10-in. welded	485	45,000	January, 1928	May, 1928
Shell Pipe Line Corp., McCamey to Houston	10-in. welded	450	40,000	Nov. 24, 1928	Building
The Texas Company, Yates to Humble sta. near Houston.	12-in. welded	535	50,000	Oct. 20, 1928	Building
United Producers Co., ‡Yates to Texas City	10-in. welded	435	50,000	Surveyed	
		3,840			
Total capacity in service			293,000		
Total capacity under construction			90,000		
Total capacity proposed			50,000		
Grand total			433,000		

Total mileage of main line right-of-way, 3,380 miles.

*Humble has 55,000-bbl. line capacity to Lytle station in Medina County and 80,000-bbl. line capacity from Lytle station south to Ingleside Harbor.

†Illinois Pipe Line Co. 10-inch line extends from Del Rio tank farm to Humble company's Lytle station, where Illinois company's crude is received by Humble company for shipment to coast.

‡Proposed line.

ROCKY MOUNTAIN AREA

(Continued from Page 77)

remain shut down at 3,001 feet until after No. 1-A Shaffer is completed, when deepening will begin under a new contract with the Utah Oil Refining Co. The Utah Southern's No. 1 Farnsworth, Section 29-4s-1e, Pleasant Valley Dome, Uinta County, is drilling in brown oil shale at 2,390 feet. The shale has been showing traces of oil for the past 300 feet. The Phillips Petroleum Co.'s No. 1 Shick, C NE, Section 16-27-16, Wayne County, has recovered tools and resumed drilling below 4,600 feet. The Continental Oil Co.'s Boundary Butte test in Section 22-43-22, San Juan County, is still bottomed at 4,525 feet, where it had some dry gas, and is underreaming.

COLORADO

While Colorado had no important completions to report this week, the news from several of the wildcats was of more than ordinary interest. One attracting attention is Stanley Barrows and others' No. 1 Barrows, NW cor. SE Section 7-11n-68, in Larimer County, north of the Wellington Dome and just south of the Wyoming line, on the Round Butte structure. This well is drilling at 1,955 feet and is through the Lakota, the third of the series of sands in the Dakota formation, and is believed to be 10 to 15 feet off of the Morrison. Round Butte is a well-defined structure upon which the Cactus Petroleum Co. drilled a test in 1919 on Section 12-11-69, before oil was found in the Dakota sands at Fort Collins and Wellington on the eastern slope of the mountain range. The Cactus well was abandoned at 1,829 feet with a hole full of water from the Lakota sand, the water coming in at 1,805 feet, 15 feet below the top. The Wall Creek at 907-30 feet was dry. The Muddy (first Dakota sand) at 1,550-1,612 feet carried artesian water, estimated at 400 bbls. per hour, and the Dakota sand at 1,630-60 feet also carried water. In one of the sands a hard asphalt was encountered, indicating that the oil had migrated.

Last fall Stanley Barrows started his test on Section 7. The top of the Muddy was found at 1,652 feet and it contained a slight show of oil while making 600 bbls. of water per day. The top of the Dakota was encountered at 1,830 feet and contained a better show of oil than was found in the Muddy and a smaller quantity of water, the latter being about 100 bbls. a day. At 1,893-1,900 feet, in the Dakota sand, about 18 feet from the top, a stratum of liquid asphalt was cut, the fluid being of about the consistency of thick molasses and oozing into the hole. It is understood that in the Cactus well this asphalt was hard and at the bottom of the sand. It was cased off with the 6⅝-inch in the Barrows well. The Lakota had another show of oil, sufficient to coat the bailer, but no water, the sand being dry except for the show of oil. The well is to be continued to the Sundance unless commercial production is found in the Morrison. The Sundance is productive at Iles and Moffat on the western side of the mountain range, but never has been tested so far as known on the eastern side in northern Colorado. The operation is attracting considerable attention and some protection acreage has been acquired by several firms and another company is having extensive surveys of the area made.

Pueblo Wildcat

The Rozella Oil Co.'s No. 1 Shaw, SE NW NW, Section 3-22-63, southeast of Pueblo, which has attracted more people to the well than any wildcat drilled in Colorado for several years, has not shown any material change since last report. The syndicate is prepared to run a string of casing, install a pump and make a test of production, but has been delayed by the injunction suit filed by C. H. Bradler and Isadore Schuster, who claim an interest in the well. The hearing on the application was postponed and it is understood a settlement is about to be reached. The well is still bottomed at 1,190 feet and has about 700 feet of oil standing in the hole. Officials estimate that altogether about 50 bbls. have been bailed out without lowering the column. The show of water may be coming from an ineffectual attempt to shut off the water at a higher horizon. About 600 feet of the hole is open and the casing will be run and set before a test is made. No log was kept by the drillers and the identity of the horizon still remains in doubt, the opinions being about equally divided whether the oil is from the Dakota, or the Timpas lime above the Dakota. While leasing has been active, no new tests actually have been started. However, preparations for several are under way.

Florence Field

Sixty-six years after the first oil well was drilled in Colorado, leading to the discovery of the second producing pool in the country, the Florence Field, drilling operations have been resumed within a stone's throw of the first discovery. About 6 miles north of Canon City is an oil spring near which A. M. Cassedy, a Pennsylvania operator, put down a shaft in 1863 to a depth of 24 feet and encountered a production of 1 bbl. of oil per day from two horizons. A small refinery for making "coal" oil was built near the well and this was the starting of the industry in Colorado. This was on Oil Creek, northwest of the present Florence Pool. Recently Clem Lovisone, of Canon City, attempted to repeat the Cassedy operation. A shaft 6 feet in diameter was started on the SE NW. Section 3-18-70. It was sunk to a depth of 26 feet when the gas became so strong that the workmen could not continue. A small rig was erected and the well was drilled to 51 feet when oil was encountered. An ordinary pump as installed and the well tested 1½ bbls. in 24 hours, which the operator decided was not commercial even at that depth. The rig was moved over to the NE SE NW of the same section and No. 2 was drilled to 61 feet when the oil horizon was encountered. The 6¼-inch was run and the well continued to 100 feet. On a pumping test it made 3 bbls. in 24 hours. The operator plans to put down a group of wells and install a power. This operation is located only half a mile south of a well put down by the Mutual Oil & Development Co. on the SW SW, Section 34-17-70, which is shut down at a total depth of 3,216 feet. This well had a flow of water at 2,788 feet estimated at 1,100 bbls. per hour. Efforts to shut off this water continued for more than a year, and the hole was drilled down and the operators claimed to have entered a sand and found oil. However, the hole, under the direction of the United States Bureau of Mines, was plugged back and further efforts made to secure a complete shutoff. It is understood the government officials declined to permit the well to be drilled into the sand again unless there was a complete shutoff and it has been idle for many months. It had oil and gas shows at five or six different horizons. This was intended as a test to the Pennsylvanian formation.

In the Florence-Canon City district, a fire did about $2,000 damages at the Table Mesa Oil Co.'s No. 1 Beltramo, Section 2-19-70, when a driller attempted to thaw out a flow line. Leaking oil and gas caught fire and two small tanks, rig and other equipment were burned. One new operation commenced spudding, this being Raddatz, Vogel & Travis' No. 21 Hassler, C NE, Section 32-20-69, in the south extension of the Florence Pool.

Mesa County

A test is to be drilled in the city limits of Grand Junction, in Mesa County, on the western slope of the mountain range, by Parrish & Langston, in their No. 1 D.&R.G. in the NE NW, Section 23-1s-1w. The location is on property belonging to the Denver & Rio Grande Western Railroad. It was erroneously stated last week that this well was to be drilled in the city limits of Pueblo. It will be a shallow test, the hole being 10 inches at the top.

In Larimer County, the Five Square Oil & Gas Co.'s No. 1-A State, SW cor., Section 16-4n-69, Berthoud Dome, is standing with the 8¼-inch cemented at 2,902 feet.

The Ruby Hill Oil & Gas Co.'s No. 1 Braden, SE cor., ection 24-4s-69, Jefferson County, near Denver, is making slow progress on account of caving ground. It is drilling at 775 feet.

In Huerfano County, the Parker Club, Inc.'s No. 1 fee, Section 4-28-68, on the Badito-Alamo structure, joint with the Kinney-Coastal Oil Co., has resumed after being shut down for some time on account of water shortage. The 12½-inch has been cemented at 1,265 feet.

The Royal Producers & Royalty Co.'s No. 1, SE NE, Section 27-33-12, Red Mesa Dome, LaPlata County, which has been shut down for several weeks at 650 feet, is still idle, but it is reported control has been sold to the McGarr Petroleum Corp., and that the well is to be completed. The Major Petroleum, Inc.'s No. 1 Blackwolf, Section 7-2s-43, Yuma County, encountered a pocket of gas at 1,285 feet and is drilling below 1,425 feet without picking up any more gas. It is at the depth at which a considerable flow was expected, based on the logs of other wells in the vicinity. In Rio Blanco County, the White Eagle Oil & Refining Co.'s No. 1 Fordham, Section 9-2s-96, has succeeded in sidetracking the 15½-inch bit and has the casing below the bit, but is reported having some trouble running tools. Total depth is 432 feet.

In Routt County, the Hynds Oil Co.'s No. 2 State, SW NW, Section 17-6n-86, Tow Creek Dome, is reported having 1,200 feet of oil in the hole at 3,130 feet. The Texas Production Co.'s No. 4 Belle Dennis, NE SE, Section 7-6-86, is drilling at 4,011 feet, and its No. 6 Quaintance-Hocking, SW NE, Section 18-6-86, cemented the 12½-inch at 297 feet.

Iles Dome

Thomas McLaughlin and others' No. 1 Williams, NW SW, Section 2-3n-92, in the fault area south of the Iles Dome in Moffat County, is reaching an interesting stage. At last reports it was drilling at 2,395 feet in hard shell with a show of light green oil. The hole is believed to be close to the top of the Frontier, which if correct, means the well is running 300 to 400 feet higher than expected. The show of oil at 2,395 feet is the second one so far encountered. The other was at 1,120 feet. This well is south of the major east-west fault that traverses the area and on the upthrow side. The Sundance, the objective, was expected at 3,800 to 4,000 feet, but if the Frontier is as high as it now appears to be, the Sundance can be expected at around 3,500 feet. The producing wells at Iles are north of the fault. Midwest Refining Co.'s No. 3-SD Shaw, NE NE, Section 27-4-92, cemented the 6¼-inch at 3,233 feet and is standing, and its No. 24-SD Parkinson, SE NW, Section 22-4-92, is bottomed at 2,830 feet, total depth, cleaning out and underreaming. The Texas Production Co.'s No. 36 Lloyd, SE cor., Section 21-4-92, is drilling at 3,085 feet and carrying the 8¼-inch. Same company's No. 11, Knowlton, Section 33-5-91, Moffat Dome, is drilling at 3,963 feet. The Ohio Oil Co.'s No. 1 State-Reiter-Foster, SE cor., Section 16-12n-100, on the Hiawatha Dome, is drilling into a sand at a little below 3,165 feet and the results will be awaited with considerable interest. The well is reported making 1,000,000 feet of gas from the top of the sand. This well is to the west and southwest of the three gassers on this structure and due to its location on the flank it was believed to have a good chance for oil production. It is through the sands which yield the gas in the other wells and the latest strike apparently is coming from a horizon heretofore untested. This is a Tertiary structure.

WYOMING

Cold weather with the thermometer registering 10 to 20 degrees below zero continued to handicap drilling operations in various parts of Wyoming, especially the southwestern area, this week. Oil men frequently have some trying experiences in the cold. Dudley K. Bowen, superintendent of the Ohio Oil Co. camp in Baxter Basin, and Michael Warren, tool dresser for the Tower Petroleum Co., reached Rock Springs the past week after being overdue 30 hours. While breaking through heavy snow banks the underpinning of their car gave way and the car levelled down until it was almost obscured by the snow. After being unable to dig out they walked to the Ohio camp and waited for dawn when they secured aid and dug out the car and resumed the trip.

The discovery well on the Frannie Dome in Park County, in the NW NW Section 25-58-98, which came in last fall at 2,612 feet total depth, is showing up better than expected. In December it made 9,700 bbls., or better than an average of 300 bbls. per day. The well was drilled by Rosenburg and others and subsequently the operation was taken over by the Midwest Refining Co. This company is now drilling two wells. Its No. 36 Rosenburg, SE cor. Section 25-58-98, is bottomed at 52 feet (corrected) at which depth the 20-inch was cemented. No. 1 Kirk, SE cor. Section 23-58-98, drilling for Peters & Kirk under contract, is bottomed at 1,275 feet in a water sand, the water standing 900 feet in the hole. This well is one-fourth of a mile west and north of the discovery and No. 36 is a half mile to the south and a little to the east.

Only one completion was reported in Wyoming this week, the Ohio Oil Co.'s No. 2 H. & C., SW NW Section 27-20-78, Rock River Field in Carbon County. It is being tested at 3,463 feet and probably will make a 25-bbl. well.

Skelton Dome

The Texas Production Co.'s No. 1, Section 23-45-100, on the Skelton Dome in Hot Springs County, is drilling at 820 feet and the Prairie Oil & Gas Co.'s No. 1 Chilcote, Section 35-56-95, Little Sheep Mountain Dome in Big Horn County, is running 8¼-inch casing at 2,715 feet. It is bottomed in the Deadwood formation and will be carried to the granite. The Utah Southern Oil Co.'s No. 3, Section 29-56-97, on the Garland Dome in Big Horn County, has not yet been conditioned for a test. It is drilling out cement plug at 3,275 feet. The bottom of the plug is at 3,317 feet and total depth is 3,763 feet.

Decline in pipe line runs from Oregon Basin is due in part to the closing down of producing wells on account of storage being full and in part to the Cody Petroleum Co. having some difficulty with its dehydrating plants. This company's producers on the saddle between the two domes are making considerable water and put a heavy burden on the dehydrators. Drilling in the field is confined to a few wells. The Wyoming Western Oil Co.'s No. 3 Hough, SE SE Section 18-51-100, is drilling at 3,850 feet, and the Cody Petroleum Co.'s No. 1 Garner, SW NE Section 27-51-101, is drilling at 2,805 feet. The Ohio Oil Co.'s No. 1 Sonners, Account 3, SE Section 8-51-100, is rigging up to drill at 3,785 feet at which depth the 6⅝-inch was cemented, and the Big Horn Petroleum Co.'s No. 1 Trumbull, SW NE Section 7-51-100, is drilling at 3,768 feet. The Producers & Refiners' No. 1, Section 7-57-97, Sage Creek structure, southeast of the Frannie discovery, is drilling at 1,553 feet in pink shale. The Ohio Oil Co.'s No. 1 Pulley, Section 27-53-101, Shoshone Dome, is still endeavoring to make a producer. The rods and tubing are being run for a pumping test. It was plugged back from a total depth of 4,780 feet.

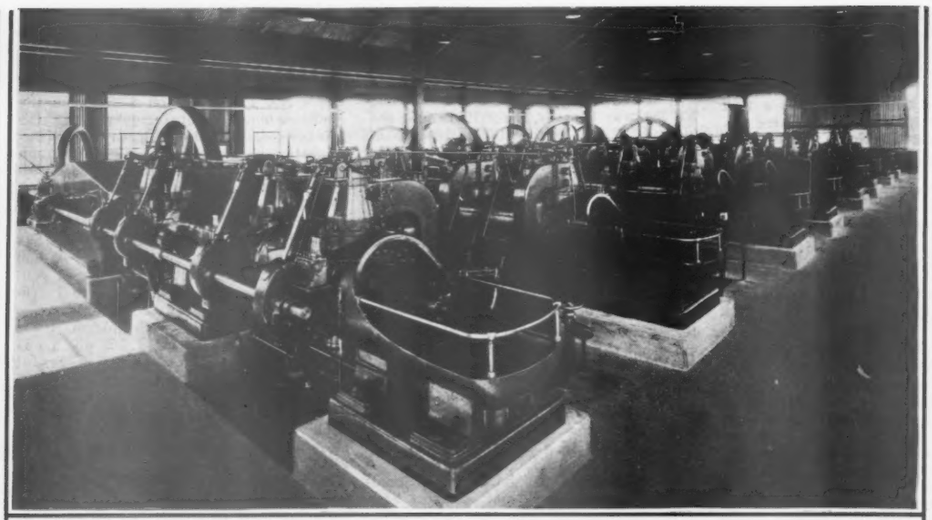
In Fremont County, the Kinney-Coastal Oil Co.'s No. 1 Dykeman, SE SW Section 22-3n-1w, deep test on the Pilot Butte structure, commenced spudding on January 22. The Producers & Refiners' No. 7, Section 14-32-95, Sand Draw, is still bottomed at 2,917 feet where it came in several weeks ago as a big gasser. At present it is fishing for drill rods.

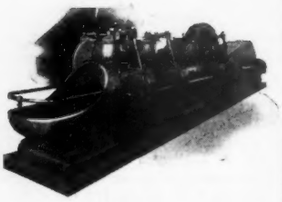
Sweetwater County

The Ohio Oil Co. has made a location for a deep test in the NE Section 24-19-104, Sweetwater County, on a new structure 6 miles east of Rock Springs and north of the Baxter Basin Field. Materials are being moved to location.

None of the wildcats in Carbon County show any progress for the week. In Sublet County, the California Co.'s No. 1 Wyss, Section 12-32-115, South Cottonwood, is drilling in hard gray limey sand

The photograph at right shows one of Cities Service Company's gas compressor stations equipped with Cooper Type-22 twin tandem, 1000 H.P. engines. This size has become the country's standard for main line gas compressor stations and they are built on a quantity production basis.





Photograph above shows a Cooper Type-19 single tandem, 380 H.P. gas engine driving an electric generator. This same engine is built as a single cylinder 200 H.P., twin cylinder 400 H.P., and twin tandem 760 H.P. for direct driving compressors and every power purpose.

WHY DO SO MANY PEOPLE

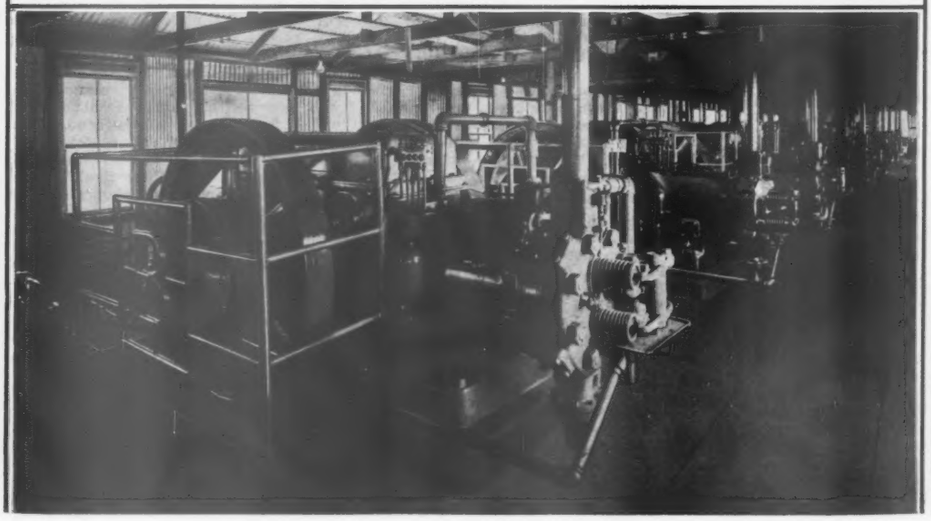
Very frankly, there is no one reason that will explain it. After looking over the Cooper plant and studying the Cooper product, one man recently wanted to credit it to the age of the company. He believed that gas engine users just naturally had more confidence in a concern which has been building engines for ninety-five years.

Another purchaser insists that he would keep right on using Cooper engines even if he thought they were no better, because of the service he gets with his Coopers.

We had a letter this week from a man in California who operates a compressor plant of Coopers. He writes that Cooper engines actually are a lot better than any other and he has operated nearly every

The C. & G. Cooper Company, Mt. Vernon, Ohio

Photograph at right shows Barnsdall Oil Company's compressor plant containing ten Cooper Type-16, 50 H.P. gas engine driven compressors. This is a four cycle short coupled self contained Timken equipped engine designed especially for small one, two, and three engine isolated compressor stations.



Photograph at left shows the Coltexo Corporation's gasoline plant near Pampa, Texas. The Cooper Type-80, 170 H.P. compressors have been used by the hundreds during the last few years in gasoline plants, refineries and natural gas compressing stations.

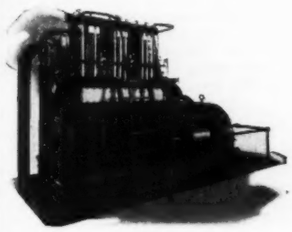
CHOOSE COOPER ENGINES?

make. He says because of their accessibility and quality of materials, he can show much better operating records with Coopers.

Another operator says they are cheaper to maintain. Still another, says that while several manufacturers promise more capacity, he has always found Cooper guarantees conservative and that he actually can pump more gas with less total expense with Coopers. Of course, there are some who say that they have always used Coopers and so long as they continue so thoroughly satisfactory—why change?

We set out to find the underlying reason for so many people choosing Coopers. We end up by learning that there are a lot of men who claim that there is every reason for using them, so now the logical thing seems to be to keep right on trying to make Cooper engines and Cooper service still better. If you have a job for a gas or a Diesel engine, better get in touch first with the nearest Cooper office.

MAGNOLIA BUILDING, DALLAS *KENNEDY BUILDING, TULSA*
649 S. OLIVE STREET, LOS ANGELES



Photograph above shows a Cooper M. A. N. three cylinder, 165 H.P. solid injection Diesel driving an electric generator. This engine is available in standard sizes up to 340 H.P. for every power purpose.

Photograph at left shows a Hope Vertical 450 H.P. gas engine driving an electric generator in an industrial plant in Texas. Hope engines are built by Cooper in sizes from 60 to 540 H.P. for every power purpose.

at 1,275 feet, and its No. 1 Bushell, SW SE Section 11-29-115, is still bottomed at 2,503 feet and underreaming. Same company's No. 1 Union Pacific, NE NW Section 7-17-116, Uinta County, is drilling at 2,369 feet and still in white sand. The Ohio Oil Co.'s No. 1 Humphreys, SW SE Section 2-12-101, Canon Creek Dome, Sweetwater County, has resumed drilling after setting the 12½-inch at 1,907 feet. The Midwest Refining Co.'s No. 1, Section 35-22-115, Waterfall structure, in Lincoln County, is bottomed at 2,355 feet in buff-colored sand and fishing for tools.

NEBRASKA

A wildcat drilling in western Nebraska 30 miles east of the Wyoming line which is at an interesting stage is William Erbe and others' No. 1 Pinney, NW NW Section 13-32n-52w, about 5 miles north and 1 mile east of Crawford. The well at last reports was bottomed at 1,640 feet in what is believed to be the Carlisle shale in the Cretaceous. The surface formation is Tertiary of which there was 269 feet followed by 900 feet of Pierre, the latter giving evidence of considerable erosion before the Tertiary was laid down. At 895-900 feet a show of gas, sufficient to burn a flame 10 feet high and estimated at 500,000 feet or more, was encountered, the gas being wet. At 1,200 feet it was in brown sandy shale which, according to the drillers, showed enough oil to drip off the bailer, accompanied by a little gas. This horizon was believed to be the Wall Creek, or Frontier, of Wyoming. The 10-inch casing is being run to the bottom at 1,640 feet.

SOUTH DAKOTA

A wildcat drilling in 1924-25 by the Ireland-Hollingsworth interests in the Red Canyon district, Section 15-8-3e, South Dakota, had been standing, until recently, with operations suspended around 2,200 feet. It was decided to pull the casing, and two shots were employed to loosen the pipe, with the result, according to the Hot Springs Evening Star, that a gush of crude shot over the derrick, and oil continued to flow steadily for several days, in decreasing amounts.

The well is 5 miles northeast of Edgemont, and about 23 miles southwest of Hot Springs on land owned by the Cleveland Stone Quarry Co., with an oil lease let to Harry Hollingsworth and Arch Nequette of Edgemont.

Geologists investigating the Red Canyon region first reported the possibility of an oil structure. Rolland Ireland, an attorney, and a group of Lincoln, Nebr., men initiated drilling operations. They leased 10,000 acres and selected a spot on the Cleveland Stone Quarry property. Interrupted by cold weather in the winter of 1924-25, drilling was resumed in the spring. By June, 1925, the bore had reached the 2,000-foot level. On June 30, a flow of gas, estimated at 1,000,000 feet per 24 hours was struck. It threw water and sand 75 feet into the air and was reported to have had a gasoline odor.

Oil men, noting that the gas was found after a heavy layer of hard blue limestone had been penetrated, thought the top of the Amdem sand had been reached. Drilling was resumed. A bit and a piece of cable lost in the hole delayed operations. On July 20, 1925, at 2,085 feet, oil was struck—not a flow, but a heavy showing. Water and oil rose for 1,000 feet in the 5⅞-inch pipe. Samples were not green with a paraffin base as in Wyoming wells, but black and of an asphalt base. Forty-two per cent of the oil was found to be gasoline.

A strong flow, drillers hoped, would be encountered deeper in the Amdem sand. They capped the hole for a few days, hoping the accumulated gas pressure would release the oil. But no such results followed, and drilling was again resumed. New machinery was ordered. A bit was lost. Already $50,000 has been spent on the venture, it is asserted.

MONTANA

Winter has shut down most of the Montana fields and wildcat operations. In eastern Montana the Cabin Creek development is closed down tightly except for the gas production. No more drilling will be done on the wells until the Chinook comes and warmer weather prevails.

No wells are drilling in the Cat Creek district. Below zero temperatures have completely shut down all activity there except pumping. The same condition prevails at Bannatyne, and Sunburst is not only shut down in all the drilling wells, but the drifts have about closed the roads in that field.

Pondera was the only field showing activity in the drilling column after the blizzard hit the State. The Warren Oil Co. closed a deal for the SE NE Section 17-27-4 and has started moving equipment for a well. This is west of the development, but still is considered prospective territory.

The Continental Development Co. completed a well on the Gjullin lease, Section 15-27-4, that is good for 300 bbls. The Texas Production Co. completed its No. 7 on the Copley lease, Section 15-27-4 and the well is making 50 bbls. daily. Pondera now has 88 oil producers, 1 gas well and 7 dry holes. Sixteen tests are drilling.

ROCKY MOUNTAIN PRODUCTION
Daily Average Runs Week Ended January 26

WYOMING	
Salt Creek	29,580
Big Muddy	2,370
Grass Creek	2,120
Elk Basin	800
Frannie	280
Ferris	50
Rock River	2,310
Lance Creek	320
La Barge	2,680
Poison Spider	1,370
Oregon Basin	2,890
Osage	470
Lander	450
Byron	40
Lost Soldier	3,440
Simpson Ridge	60
Dutton Creek	50
Rex Lake	100
Hamilton Dome	720
Alkali Butte	50
Greybull	10
Total Wyoming	50,120
MONTANA	
Cat Creek	1,490
Kevin-Sunburst	6,740
Pondera	2,890
Total Montana	11,120
COLORADO	
Florence	1,127
Moffat	1,131
Fort Collins	2,400
Iles Dome	1,642
Rangely	100
Tow Creek	432
Boulder	25
Total Colorado	6,857
NEW MEXICO	
Rattlesnake	420
Hogback	510
Artesia	962
Cap Rock	119
Table Mesa	....
Total New Mexico	2,011
Total Rocky Mountain	70,108

OKLAHOMA FIELDS

(Continued from Page 68)

is also a location. T. B. Slick has the rig on the ground for No. 1 Harjo, NW cor. Section 30-7-6. The rig has been moved out for No. 1 Mulcussy, SW cor. SE NE, Section 4-7-7, East Little River area. Sinclair Oil & Gas Co. has the rig on the ground for No. 3 Amos "B," NE cor. SW, Section 7-5-8, Allen Pool. Location has been made for No. 4 Amos "B," SW cor. NE SW, Section 7-5-8. Mid-Continent Petroleum Corp. is building the rig for No. 14 Fleet, SW cor. NW SE, Section 7-5-8.

McCulloch Oil Co. and others' No. 1 Rentie, NE cor. NW NW, Section 7-9-6, Earlsboro Pool, is dry and abandoned at 4,331 feet in Wilcox sand. Pure Oil Co.'s No. 2 Brinson, NW cor. SW, Section 24-7-6, Little River Pool, made 347 bbls. from Wilcox sand at 4,354-62 feet. The Texas Company's No. 6 Lucy, SE cor. SW SE, Section 18-5-8, Allen Pool, flowed 660 bbls. from Cromwell sand at 2,530-75 feet.

The Prairie Oil & Gas Co. is moving the rig in for No. 4 Baker, SE cor. NW NE, Section 24-9-5, Earlsboro area. Location has been made for No. 5 Baker, SW cor. SE SW NE, Section 24-9-5. Producers & Refiners Corp. made location for No. 2 Johnson, SE cor. SW NW, Section 24-7-6. The Prairie Oil & Gas Co.'s No. 1 Davis, NE cor. NE SE, Section 21-10-7, has been abandoned at 3,808 feet.

Pottawatomie County

Superior Oil Corp. made location for No. 1 Pratt, NE cor. NW NW, Section 13-8-4. Gypsy Oil Co. is moving in the rig for No. 6 Miller, SW cor. NE SE, Section 18-8-5, Maud Pool. No. 7 Miller, NW cor. SE SE, Section 18-8-5, is a cellar. Skelly Oil Co. and Margay Oil Co.'s No. 4 Linger, SE cor. NW NE, Section 18-8-5, is a cellar. Pure Oil Co. has dug the cellar for No. 7 Lindley, NE cor. SW SE, Section 18-8-5. No. 8 Lindley, SE cor. NW SE, Section 18-8-5, is also a cellar. Sinclair Oil & Gas Co. has the rig on the ground for No. 9 Bellars, SE cor. NE NE, Section 19-8-5. No. 10 Bellars, NE cor. SE NE, Section 19-8-5, is a location. Magnolia Petroleum Co. has the rig on the ground for No. 1 Green, SE cor. NW, Section 20-8-5. Location was made for No. 2 Green, NW cor. NE NW, Section 20-8-5. Skelly Oil Co. moved the rig out for No. 1 Green, NW cor. SW NW, Section 20-8-5.

Amerada Petroleum Corp. made location for No. 2 Green, SW cor. NW NW, Section 20-8-5. Carter Oil Co. has the rig on the ground for No. 1 McGee, NE cor. SE NW, Section 26-7-4, St. Louis Pool. Sinclair Oil & Gas Co. made location for No. 3 Brandenburg, SW cor. SE SW, Section 7-7-5. Magnolia Petroleum Co. has the rig on the ground for No. 1 Pugh, SW cor. SE SE, Section 7-7-5. Location has been made for No. 4 Brandenburg, NE cor. SW NW, Section 18-7-5. No. 5 Brandenburg, SE cor. SW NW, Section 18-7-5, is also a location.

Sinclair Oil & Gas Co. made location for No. 7 Nesbit, SW cor. SE NW, Section 18-7-5. No. 8 Nesbit, NW cor. SE NW, Section 18-7-5, is also a location. T. B. Slick and Maud Oil & Gas Co. made location for No. 7 Davis, NE cor. SW NE, Section 18-7-5. Location was made for No. 8 Davis, NE cor. NW NE, Section 18-7-5. T. B. Slick made location for No. 2 Pugh, SE cor. SW SE, Section 7-7-5. Pure Oil Co.'s No. 1 Thrailkill, SW cor. NW, Section 19-7-5, is drilling deeper at 3,897 feet.

Amerada Petroleum Corp.'s No. 1 Gossland, NE cor. SW, Section 8-8-5, Maud Pool, has been completed for 970 bbls. at 4,310 feet, producing from Hunton and Simpson sand. McMan Oil Co. and White Eagle Oil & Refining Co.'s No. 1 Roberts, NE cor. SW SE, Section 9-8-5, Earlsboro Pool, is dry and abandoned at 4,667 feet in Wilcox sand.

Darby Petroleum Co.'s No. 1 Ketchum, NE cor. SE NW, Section 19-8-5, was completed for 354 bbls. at 4,257 feet in Sylvan shale. Gypsy Oil Co.'s No. 4 Le Clair, SW cor. SE, Section 23-7-4, St. Louis Pool, made 620 bbls. from Wilcox sand at 4,238-57 feet. Blackwell Oil & Gas Co.'s No. 1 Lewis, SW cor. NE, Section 24-7-4, made 30 bbls. from Simpson sand at 4,356-4,490 feet. Sinclair Oil & Gas Co.'s No. 11 Blandin, SW cor. SE SW, Section 24-7-4, is pumping 40 bbls. from 4,309 feet. Blackwell Oil & Gas Co.'s No. 1 Cherry, NW cor. NE, Section 25-7-4, swabbed 595 bbls. from Simpson sand at 4,212-23 feet.

Sinclair Oil & Gas Co.'s No. 5 Neeley, NW cor. SW SW, Section 25-7-4, made 205 bbls. from Simpson sand at 4,198-4,226 feet. Pure Oil Co.'s No. 2 Dodson, NW cor. SE SE, Section 26-7-4, is pumping 125 bbls. from Simpson sand at 4,090-4,177 feet. Shaffer Oil & Refining Co.'s No. 1 Tolon, NE cor. SE SW, Section 30-7-5, made 2,005 bbls. from Sylvan sand at 3,980-4,010 feet.

Greater Seminole Field

The production of the Little River, Maud, Mission, Bowlegs and Earlsboro Pools of the Greater Seminole Field on Thursday, January 24, follows:

Little River Pool

Company, farm—	Location	Wells	Prod.
Amerada.			
Nitey	2- 7-6	3	390
Amerada-Wilcox:			
Fore	35- 8-6	2	605
Barnsdall:			
Cotcha	23- 7-6	2	1,200
Hotulke	22- 7-6	3	395
Walker	4- 7-6	1	449
Blackwell:			
Baker	11- 7-6	4	1,945
Nitey	35- 8-6	6	2,056
Talley	14- 7-6	4	1,215
Bryan & Emery:			
Walker	4- 7-6	1	13
Carter:			
Cotcha, M.	23- 7-6	3	275
Cudjo, L.	23- 7-6	2	240
Fish	36- 8-6	4	505
Harjo, C.	11- 7-6	3	4,030
Harjo, M.	13- 7-6	2	3,310
Jackson	11- 7-6	4	975
Larney	24- 7-6	4	3,57
Lena	10- 7-6	1	5
Moore	11- 7-6	2	6
Tewee	14- 7-6	6	1,84
Thomas	11- 7-6	1	17
Wilson	12- 7-6	2	2
Champlin:			
Tewee	14- 7-6	2	7
Continental:			
Cosar	36- 8-6	7	1,7
Cosar, M.	25- 8-6	1	2
Continental & Fisher:			
Milsey	11- 7-6	2	4
Empire:			
Charty	24- 7-6	1	
Coker	13- 7-6	1	
Sandlin	3- 7-6	1	5
Gypsy:			
Brown, C.	33- 8-6	2	3
Brown, M.	33- 8-6	1	1,0
Campbell	33- 7-6	2	
Conard	22- 7-6	2	2
Cosar, M.	25- 8-6	1	
Cosar, W.	36- 8-6	2	
Cotcha	23- 7-6	7	2,0
Denmark	11- 7-6	4	1,3
Hulhoke	14- 7-6	10	3,1
Mungee	1- 7-6	1	
Payne	5- 7-7	1	
Pottie	35- 8-6	4	1,6
Renton	11- 7-6	3	4
Independent:			
Davis, R.	13- 7-6	4	3,1
Tewee	14- 7-6	6	2,7
Williams	15- 7-6	1	6
Independent & Highway:			
Harris	23- 7-6	8	3,3
Independent & White Eagle:			
Davis	2- 7-6	4	8
I. T. L. O.:			
Campbell	1- 7-6	1	
Dungan	35- 8-6	3	2
House, M. A.	1- 7-6	1	
House, W. E.	1- 7-6	1	
House "B"	2- 7-6	4	6
Hull	26- 8-6	3	3
Jackson	1- 7-6	3	3
McCulla	1- 7-6	3	2
Nitey	2- 7-6	6	2
Phoebe "A"	36- 8-6	2	
Phoebe "B"	36- 8-6	3	1
Reed	1- 7-6	1	
Soketheche	1- 7-6	3	5
Magnolia:			
Cruse	2- 7-6	4	1
Denby	11- 7-6	4	4
Dixon	31- 8-7	1	
Harjo, A.	14- 7-6	2	1
Harjo, B.	14- 7-6	2	1
Pottie	35- 8-6	4	2
Reed, E.	31- 8-7	1	
Reed, I.	22- 7-6	3	4
Marland & Shaffer:			
Harrison	4- 7-7	1	6
McCulloch & Sands:			
Harrison	4- 7-6	1	
Mid-Continent:			
Brunner	11- 7-6	4	5
Eleck	23- 7-6	1	1
Smith	6- 7-7	2	3,3
Wadsworth	36- 8-6	7	5
W. B. Pine:			
Hoyecha	26- 8-6	6	1,7
Pine-Phillips:			
Pottie	35- 8-6	2	5
Prairie:			
Chilcoat	25- 8-6	3	8
Dungan	35- 8-6	1	
Gibson	14- 7-6	5	1,5
Harris	14- 7-6	4	1,6
House	2- 7-6	4	2
Johnson	24- 7-6	1	6
Lustey	6- 7-7	1	
Moppin	24- 7-6	2	2,1
Talley	14- 7-6	4	2,1
Prairie & Amerada:			
Sunny	14- 7-6	7	6,3
Pure:			
Brinson	24- 7-6	1	4
Cotcha	14- 7-6	10	3,3
Harjo	11- 7-6	4	1,1
Hollins	11- 7-6	1	2
Reiter-Foster:			
Bunyard	14- 7-6	4	1,4
Shaffer:			
Norcome	36- 8-6	2	1
Shell:			
Caesar	11- 7-6	1	
Hotulke	23- 7-6	4	9
Jeffries	32- 8-7	1	
Johnson	13- 7-6	3	2,5
Cosar	30- 8-6	3	1,4
Haney	12- 7-6	1	
Tewee	14- 7-6	2	2,7
Shell & Kingwood:			
Pompey	24- 7-6	1	1
Skelly:			
Carl	14- 7-6	2	1,9
Slick:			
Chilcoat	9- 7-7	1	
Reed	13- 7-6	2	1,7
Williams	15- 7-6	2	9
Wood	26- 7-6	2	3
Slick & Pine:			
Coker	1- 7-6	1	9
Snowden & McSweeney:			
Tiger	13- 7-6	3	7
Superior:			
Potulka	31- 8-6	1	
Soketheche	1- 7-6	1	
Texas:			
Brooks	25- 8-6	1	4
Coker	14- 7-6	3	5
Janey	11- 7-6	4	5
Texas & Independent:			
Hotulke	23- 7-6	4	1,9
Hotulke	22- 7-6	1	
Tidal:			
House	1- 7-6	2	4
Johnson	1- 7-6	1	
Twin States:			
Lowe	25- 8-6	1	1
Wigton & Long:			
Jefferson	31- 7-6	1	3
Total		322	102,2

Maud Pool

Amerada:			
Gravel	1- 8-4	1	
Gossland	8- 8-5	1	9
Wallace	17- 8-5	1	9
Hallum	1- 8-4	1	2,2
Green	20- 8-5	1	1,1
Barnsdall:			
Coker	11- 8-5	1	2,0
Fife	14- 8-5	1	1,6
Darby:			
Ketchum	19- 8-5	1	3
Empire:			
Cluck	11- 8-5	1	
Gypsy:			
Bourassa	7- 8-5	1	1,1
Coker	10- 8-5	1	1
Miller	18- 8-5	2	2,7
Independent:			
Harding	18- 8-5	1	1,0

Imperial Petroleum Products

U. S. Motor Gasolines	Tractor Oils
High Test Gasolines	Furnace Oils
High Compression Gasolines	Gas Oils
Aviation Gasolines	Fuel Oils
Kerosenes	Road Oils

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Offering the jobber a complete line of high quality super-performing petroleum products, marketed under an exclusive trade mark, trade name and color standard.

A dependable source of *supply* . . . four refineries operating with the most modern equipment assures uniform high *quality* . . . shipping in our own tank cars enables us to render *service* . . . and our locations, Oklahoma, Arkansas and Texas, allows us to meet competitive *prices.*

Every independent jobber should be backed by the "*Four Horsemen*" of the refining industry, Dependable Supply, High Quality, Efficient Service, and Competitive Price.

For economy and security—
would you ride alone or with someone!
Would you want to win—
by a knockout or a decision!
What did the Question Mark show—
three motors or one!

. . . there are thousands of such examples demonstrating the economics and security of a consolidated effort, such as we offer under a nationally advertised trade name and backed by the "*Four Horsemen*" of the refining industry.

Imperial Refineries

Imperial Refining Co. San Angelo Refining Co.
Kettle Creek Refining Co. Wickett Refining Co.

General Offices
TULSA, OKLAHOMA

Company, farm—	Location	Wells	Prod.
I. T. I. O.:			
Simpson	10- 8-5	1	237
State	16- 8-5	1	....
Phillips et al:			
Hudson	19- 8-5	..	632
Pure:			
Lindly	18- 8-5	2	3.030
Prairie:			
Billington	11- 8-5	..	1,315
Campbell	18- 8-5	1	2,218
Mitchell	15- 8-5	1	210
Sinclair:			
Bellars	19- 8-5	1	3,225
Harjo	11- 8-5	1	1,338
Skelly & Margay:			
Lingerfelt	18- 8-5	1	2,938
Slick & White Eagle:			
Villines	20- 8-5	..	60
Sunray & Call-Cul:			
Davis	19- 8-5	..	....
Wilcox:			
Smith	8- 8-5	..	965
Total		34	31,155

Mission Pool

Amerada:			
Rice	5- 8-6	1	....
Carter:			
Fuswa	18- 8-6	1	50
Micco	8- 8-6	2	170
Gypsy:			
Baby	6- 8-6	1	15
Barkus	6- 8-6	1	....
Dosar	7- 8-6	1	325
Hardy	7- 8-6	1	....
Micco	8- 8-6	..	....
Mission	5- 8-6	1	....
Mosar	1- 8-5	1	....
Marland:			
Maines	7- 8-6	1	135
Mid-Kansas:			
Moore	7- 8-6	1	135
Prairie:			
Micco	5- 8-6	..	....
Shell & Marland:			
Herndon	7- 8-6	1	....
Shell & Papoose:			
Maines	7- 8-6	1	....
Twin States:			
Hayes	8- 8-6	1	50
Total		15	880

Bowlegs Pool

Amerada:			
Roscoe	15- 8-6	7	1,055
Atlantic:			
Baker	10- 8-6	4	405
Fleet	23- 8-6	3	245
Grayson	13- 8-6	4	685
Jones, A.	16- 8-6	2	20
Jones, C.	9- 8-6	1	140
Barnsdall:			
McNac	28- 8-6	1	22
Murrow	11- 8-6	4	398
Carter Oil:			
Bowlegs	15- 8-6	4	750
Burden	23- 8-6	2	220
Harjoche	14- 8-6	6	655
Hilly	23- 8-6	3	270
Jones	11- 8-6	4	545
Walker	15- 8-6	4	552
Wise	23- 8-6	11	1,685
Dixie:			
Culley	11- 8-6	1	90
Empire:			
Lacy	14- 8-6	6	442
Wise	23- 8-6	2	207
Gypsy:			
Bowlegs	22- 8-6	1	220
Bradley	9- 8-6	1	5
Cumsey	10- 8-6	4	837
Grayson	13- 8-6	4	437
Harjoche	10- 8-6	3	650
Jones	11- 8-6	1	15
Walker	15- 8-6	7	765
Wise	23- 8-6	2	315
I. T. I. O.:			
Barnett	24- 8-6	2	183
Barnett "B"	23- 8-6	1	65
Billington	22- 8-6	5	183
Bowlegs	22- 8-6	10	1,603
Davis	13- 8-6	4	430
Fay	13- 8-6	9	1,340
Goforth	15- 8-6	12	1,200
Livingstone	15- 8-6	10	1,700
Lizzie	13- 8-6	3	75
Walker	15- 8-6	8	946
Williams	12- 8-6	1	233
Wilmott	15- 8-6	4	280
Work	24- 8-6	1	....
Youngblood	24- 8-6	2	113
Magnolia:			
Davis	13- 8-6	3	388
Davis, M.	13- 8-6	1	144
Hammond	10- 8-6	8	682
Rhodos	12- 8-6	5	628
Van Buskirk	9- 8-6	3	693
McCulloch:			
Bowlegs	22- 8-6	2	230
Mid-Continent:			
Baker	10- 8-6	4	395
Bowlegs	22- 8-6	1	1
Smith	12- 8-6	6	585
Minnehoma:			
Bowlegs	15- 8-6	4	285
Prairie:			
Gahagan	23- 8-6	3	425
Harber	10- 8-6	8	1,925
Jones	11- 8-6	4	325
Templeton	12- 8-6	5	1,945
Whitney	23- 8-6	4	630
Pure Oil:			
Reed	14- 8-6	14	2,487
Strother "D" 11 &	14- 8-6	4	469
Strother "F"	10- 8-6	7	2,225
Roxana:			
Taylor	16- 8-6	5	73
Shaffer:			
Lacy	14- 8-6	3	355
Sinclair:			
Cumsey	10- 8-6	4	525
Ellen	11- 8-6	6	844
Harjo	14- 8-6	3	1,052
Jones	9- 8-6	7	565
Taylor	10- 8-6	4	725
Taylor, W.	10- 8-6	3	480
Walker	22- 8-6	4	952
Slick:			
Jones	3- 8-6	1	285
Texas:			
Reed	14- 8-6	11	880
Tidal:			
Grayson	13- 8-6	4	330
Harjoche	10- 8-6	6	1,070
Twin States:			
Jones	11- 8-6	1	....
Total		314	42,279

Earlsboro Pool

Amerada:			
Anderson	15- 9-5	2	373
Cowden	4- 9-5	7	1,137
Rogers	3- 9-5	2	81
Atlantic & Gypsy:			
Delaware	13- 9-4	1	....
Atlantic & Sinclair:			
Foreman	18- 9-5	1	130
Barnsdall:			
Brown	10- 9-5	4	910
Bruner, F.	2- 9-5	3	142
Bruner, N.	10- 9-5	3	1,360
Cudjo	14- 9-5	1	26
Davis, D.	11- 9-5	3	436
Davis, J.	11- 9-5	4	1,212
Davis, M.	11- 9-5	2	48
Gibson	9- 9-5	8	1,487
Hern	15- 9-5	1	1
Ingram	1- 9-5	8	512
Pack, S.	10- 9-5	4	139
Peter	10- 9-5	4	62
Sango	1- 9-5	4	1,532
Sebalka	15- 9-5	1	210
Sullivan, H.	11- 9-5	1	5
Sull-Harjo	10- 9-5	2	23
Wasutke	12- 9-5	3	821
Burke-Greis:			
Wisner	6- 9-6	2	490
Mays	1- 9-5	1	1,365
Carter:			
Davis	13- 9-5	2	225
James	6- 9-6	4	2,825
Continental:			
Kays	2- 9-5	2	30
Spencer	12- 9-5	4	497
Empire:			
Barker	12- 9-5	1	12
Edmondson	3- 9-5	3	140
Empire & Amerada:			
Bullock	8- 9-5	1	437
Gypsy:			
Bruner	10- 9-5	4	2,557
Carter, B.	11- 9-5	8	2,597
Earl	16- 9-5	1	23
Hunick	5- 9-5	2	2,232
Noble	12- 9-5	4	1,130
Peter	10- 9-5	3	157
Sango	1- 9-5	14	3,302
State	16- 9-5	4	595
Independent:			
Bruner	10- 9-5	3	310
Sullivan	10- 9-5	1	15
Knapp	8- 9-5	3	1,280
Independent-Margay:			
Gains	11- 9-5	3	190
Magnolia:			
Bryant	9- 9-5	6	112
Cowden	4- 9-5	3	29
Dixon	12- 9-5	1	18
Edmondson	3- 9-5	1	5
Gilliam	13- 9-5	1	3,403
Holmsley	11- 9-5	7	20
Hyde	13- 9-5	1	776
Ingram	10- 9-5	1	15
Lena	10- 9-5	3	37
Moore	24- 9-5	1	....
Seay	12- 9-5	9	1,672
Simpson	10- 9-5	4	155
Sparks	11- 9-5	6	454
Sullivan	12- 9-5	3	28
Mid-Continent:			
McCumber	9- 9-5	7	67
Rogers	5- 9-5	1	925
Mid-Kansas:			
Anderson	14- 9-5	2	40
Phillips:			
Dunaway	14- 9-5	1	25
Prairie:			
Baker	24- 9-5	1	60
Davis	13- 9-5	3	1,300
Graham, C.	3- 9-5	2	20
Graham, O.	10- 9-5	4	1,070
Stidham	11- 9-5	10	1,380
Prairie & Whitney:			
Harjo	24- 9-5	1	150
Roxana:			
Bayless	17- 9-5	1	14
Hearn	13- 9-5	1	122
Spencer	12- 9-5	2	1,259
Shaffer:			
Clark	1- 9-5	3	202
McCoy	36-10-5	1	25
Sinclair:			
Foreman	18- 9-5	1	15
Hollins	12- 9-5	1	30
Sango	2- 9-5	4	2,010
Skelly:			
Mays	1- 9-5	3	1,931
Shepard	6- 9-6	3	2,373
Spencer	12- 9-5	1	9
Skelly & Atlantic:			
Cherry	6- 9-6	4	1,443
Lottie	6- 9-6	1	1,581
Slick:			
James	6- 9-6	2	999
Slick et al:			
Campbell	6- 9-6	4	4,112
Superior:			
Ingram	1- 9-5	1	810
Walker	2- 9-5	3	2,102
Texas:			
Anderson	2- 9-5	8	115
Brown	10- 9-5	8	227
James	6- 9-6	2	295
Rogers	5- 9-5	5	1,500
Wilmott	10- 9-5	7	263
Tidal:			
Walker	35-10-5	3	1,815
Watkins	9- 9-5	7	2,030
Twin States:			
Barker	12- 9-5	3	64
Hern	2- 9-5	4	30
Total		299	68,791

CALIFORNIA DEEP ZONES CONTAIN BIG FACTOR

(Continued from Page 53)

producer and refiner about the same figure for his product as formerly, and at the same time relieves him of any reasonable charge of maintaining an artificial price. The public secures the better known brands of gasoline at a price several cents cheaper than formerly, but with less courtesy and less service. It is well known that the average man will work longer hours for himself than for someone else, and that he will take lesser compensation in order to remain independent. The larger marketers have in effect adopted the tactics of the independents.

Current Results

At this writing, the public is getting well-known brands of gasoline about 3 cents cheaper than formerly. The retail price of these gasolines has dropped locally from a figure of 20½ cents a gallon to one of 17½ cents a gallon, with little or no loss to the producer and refiner. Duplication in facilities is decreasing. Service stations are selling more gasoline at a smaller profit per gallon and are thus eliminating unnecessary overhead. In a word, the cost of retailing is dropping through elimination of duplicate outlets.

It is believed that if the present experiment is continued that there will be a decrease of from 20 to 30 per cent in the number of service stations in California in the near future, and that the number in operation will thereafter remain near the total necessary to take care of the public without excessive overhead. Unnecessary duplication of facilities is perhaps the chief current aggravation, in California, of the depression caused by the existing general overproduction of crude. Such duplication is uneconomical and unsound from a business standpoint. It is hard to convince the public that duplicate facilities must be paid for by the public itself—that they are in effect an extra tax of a cent or so on the average gallon of gasoline sold.

The elimination of superfluous service stations is working a temporary hardship. Yet it should be remembered that such have been, and are, an additional burden upon the oil industry at a time when it can least afford such extra load.

The new experiment in marketing is, speaking solely from present aspects, the essence of competition. The chief danger in this experiment seems to lie in the possibility that some shortsighted refiner might use his personal war as a pretext under which to drop the price of crude oil, which price for crude is already too low for prosperity. Such action would start the vicious circle all over again. The wheel would revolve and stop in the same place. The producer would merely pay for the refiner's error.

The experiment is on trial. The machinery seems to be the most normal possible, but the practical outcome is as yet uncertain.

Summary

California may reach a peak in the neighborhood of 800,000 bbls. daily within 30 days and then start a decline providing no deeper zones are discovered at Santa Fe Springs. Such deeper zones are entirely possible, and may change the picture at any time. They seem to be the only thing the oil industry need fear in or from California in the near future as regards continued overproduction. An experiment in marketing methods has been put in effect in California. The experiment utilizes competition in its widest sense, and is in general merely the adoption by all companies of the flexible tactics which have been employed by the independent retailer. If conducted ethically, it is expected to correct certain uneconomic features, and it will be watched with much interest.

COURT DECISION WILL REDUCE STATE REVENUE

Considerable importance is attached to the latest decision of the Supreme Court of the United States in which it was held that the State of Texas cannot collect a tax on gasoline sold to the Federal Government. The decision in the Texas case follows a previous decision in which it was held that the state tax on gasoline could not be collected in Mississippi on sales to departments and other agencies of the Federal Government. It is now believed that the same situation as to legality exists in many other states having gasoline taxes.

In many states the sales to the government department is a substantial factor in the tax revenue. Attorney General Claude Pollard of Texas estimates that under the Supreme Court's decision the state's revenue from its gasoline tax will decrease from $150,000 to $200,000. The state legislature will be compelled to provide this additional revenue in some other manner.

LINE TO BIRMINGHAM MAY BE LAID FIRST

By B. E. V. Luty

PITTSBURGH, Pa., Jan. 28.—Following the placing of two large orders for line pipe reported a week ago, the pipe mills do not expect anything more to develop in line pipe for a few weeks. Several important projects are being worked on and are expected to result in orders eventually. What would make the largest amount of line pipe in a single line is the project to pipe gas from northeast Louisiana to Birmingham, Ala., by a 24-inch line and then on to Chattanooga, Tenn., and Atlanta, Ga., by a 20-inch line, but it is thought the line to Birmingham will be laid first, the extension to come afterwards. For several weeks it has been understood that the Monroe to St. Louis line has been held back chiefly by a large prospective consumer in St. Louis not having closed a contract for gas.

While demand for oil country tubular goods in general has been slack, there has been quite a burst of demand in the past few days from northern Pennsylvania, drilling projects being stimulated by the recent advance in Pennsylvania oil. There are reports of premiums being paid over the posted price of $4.10. Hauling is to be done over the snow.

Demand for standard pipe has not had any seasonal picking up so far and no increase of importance is expected for another 30 days, but there has been a fair demand right along, almost wholly in butt weld.

The steel industry as a whole is running at a good rate, with a gain over the 85 per cent rate officially reported for December. The gain is small, and hardly as much as was expected by some observers, but the general prospect is that January steel ingot production will be shown by the official report to be nearer 90 per cent than the 85 per cent reported for December.

Superficially, the steel-making industry is in good shape, as the rate of operation is fully as heavy as would be expected for January and the regular seasonal swing has been an increase up to a peak in March or April, but there are some special conditions which qualify the picture.

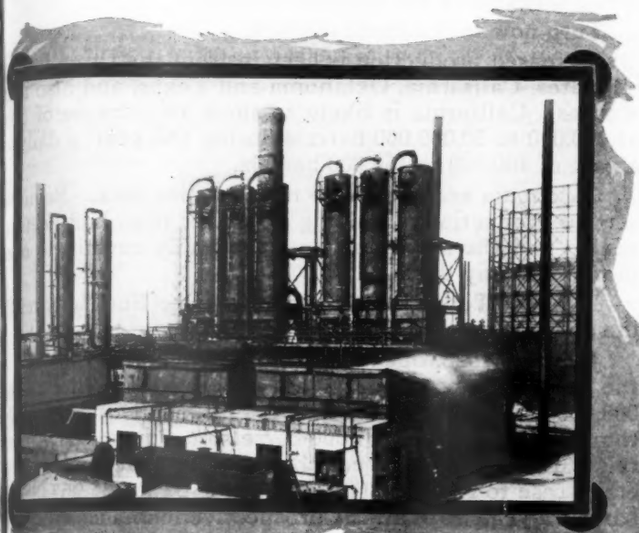
The first point is that in several lines a very considerable part of the deliveries in January are against old obligations, at prices lower than those recently ruling in the open market. Naturally, buyers took advantage of the circumstance, as they thought it probable the advanced prices would hold after the old business was worked off, and thus there may be an accumulation of steel in buyers' hands such as would militate against shipments being in full volume in February. This condition exists more or less in wire products, in hot and cold rolled strips and in some descriptions of sheets, if not all. The markets in all these lines are firm or steady at the advanced prices, which are now in full force. Indeed, various cases are related of mills turning away orders offered because they cannot make desired deliveries.

In some lines of steel consumption the demand this year may not match the very heavy demand there was last year. The general idea is that demand will hold up well through March or April, perhaps somewhat longer. Many competent observers are confident that high money rates lately ruling will continue and will curtail the volume of new products. This would apply particularly to building operations. Then there is the special case of the railroads, which are well enough provided with funds, but are going in for more electrification, which involves little steel, and do not need to buy as many rails, freight cars and locomotives as formerly as by laying heavy section rails in the past few years they have been getting the track in very good shape and by increasing efficiency in movement they are getting more results out of their freight cars.

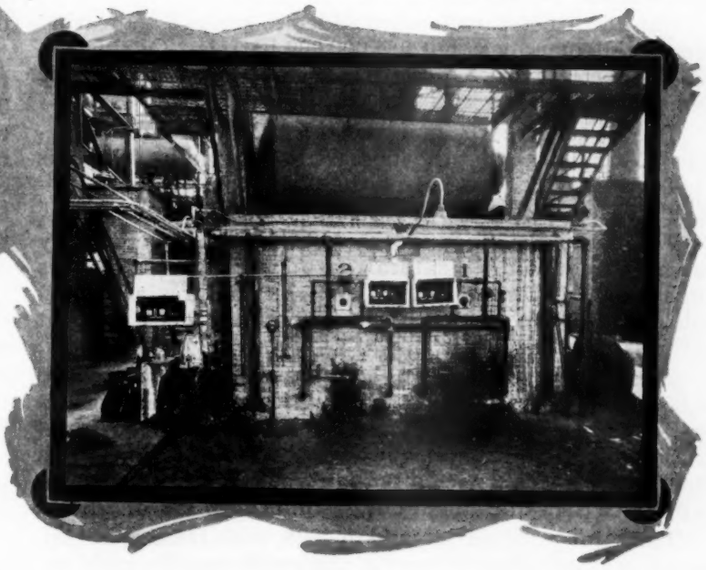
Valley pig iron continues rather dull. Foundry is $17.50 on large lots and $18 or thereabouts on small lots.

Still Furnaces and Towers

Indiana, Refinery of the Bartels Maguire Oil Co.

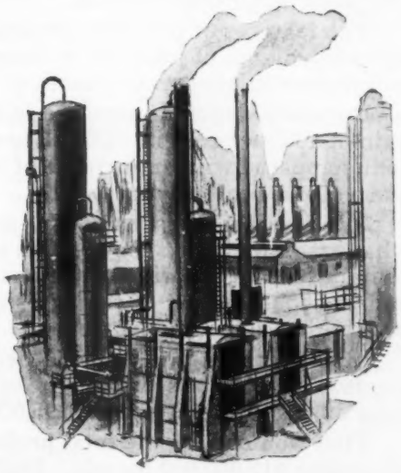


BURNER end of furnace showing the two valve mechanisms on the oil lines to the burners. The instruments controlling these valves are Brown equipment but are not shown in any of the illustrations appearing in this advertisement. On the extreme left is seen the $\%CO_2$ control which regulates steam supply to the furnace turbo-blower.



GENERAL view of tail house of double cracking unit at this plant. Note the condenser boxes at the top of the tail house, with the two sets of towers rising beyond, two bubble towers and one reflux tower in each set. All of these towers are operated with Brown Automatic Temperature Controls.

Tower Temperatures and Air to Furnaces



All of these controls were developed by Brown instrument engineering service and are operated in conjunction with Brown indicating and recording as well as control instruments.

Ask for data or consultation without obligation.

THE BROWN INSTRUMENT COMPANY
4488 Wayne Avenue, Phila, Pa.
Branches in 20 principal cities.
"To measure is to economize"—*PASCAL*

Controls

Temperature.....Pressure

Co_2.....Speed.....Flow.....

THE OUTLOOK FOR 1929

By W. T. ANDERSON

What can be expected of an industry that has met a 145 per cent increase in demand during the past ten years by piling up a 230 per cent increase in stocks?

That is the oil industry's present predicament.

But the situation is really worse than that. The industry's steadily improving efficiency in finding and producing oil and in increasing gasoline recovery is lessening the proportionate demand for crude at the very time when actual and potential production of crude is exceeding all records.

The review of the operations of the industry during 1928 in this Annual Number of The Oil and Gas Journal should be a warning and a guide for the operations in 1929.

The figures show a total production of crude in the United States during the past year of approximately 898,000,000 barrels. Add practically 79,000,000 barrels of imported crude and we had a total supply of 977,000,000 barrels in 1928.

But 21,000,000 barrels were added to storage, indicating the total demand was but 956,000,000 barrels. Of this 19,000,000 barrels were exported, reducing the total domestic demand for crude to 937,000,000 barrels.

The aggregate consumption in 1927 was about 885,000,000 barrels, so that the increase in demand for 1928 was 71,000,000 barrels instead of the 100,000,000 barrels estimated based on a 40 per cent recovery of gasoline.

What actually happened was that the gasoline recovery percentage, including natural gasoline used at refineries during the 11 months of 1928 for which figures are available, increased to 41.26 per cent against but 39.84 per cent in the same period of 1927.

This increased percentage of gasoline recovery saved 30,000,000 barrels of crude. Through increased use of natural gasoline by refineries and improved efficiency in refineries the refining industry was able to get along with 85,000 barrels less crude daily than would have been needed to produce the same amount of gasoline with 1927 methods.

The total gasoline demand in 1928, with December estimated, was 380,000,000 barrels, the crude runs to stills aggregating 910,000,000 barrels.

The features of the 1928 demand were a lesser percentage and volume of increase in domestic consumption, and an increase in exports of gasoline.

Domestic demand increased but 9.5 per cent against a gain of 13.7 per cent in 1927. Exports increased 21.39 per cent compared with an increase of only 2.6 per cent in 1927 and a 40 per cent increase in 1926.

It is impossible to make any approximate estimate of what gasoline exports may be this year, the situation being complicated by the wide variations in the past three years and the construction of refineries abroad which will compete with American exporters.

In calculating the probable demand for gasoline during 1929 it does not seem safe to estimate a larger increase than during the past year, or 35,000,000 barrels.

That would make the total probable demand in 1929 not exceeding 415,000,000 barrels. Deducting 4,500,000 barrels for imports, the total demand upon American refiners would be 410,500,000 barrels.

The continued expansion of cracking facilities and the low prices prevailing for fuel oil indicate a further increase in percentage of gasoline recovery, probably to 42.5 or even 43 per cent, including natural gasoline, in 1929.

To supply 410,500,000 barrels of gasoline on the basis of 42.5 per cent recovery would require 966,000,000 barrels of crude. If the percentage of recovery rises to 43 then only 955,000,000 barrels of crude would be needed run to stills.

That calculation is further complicated by the fact that there was an increase in imports of crude oil during 1928 of nearly 22,000,000 barrels, but reduced prices for American crude may reduce the volume of imports.

Turn now to the crude outlook.

Increased production is certain from the three leading oil states, California, Oklahoma and Texas, and also from Kansas. California is likely to show an increase of from 35,000,000 to 50,000,000 barrels during the year, a daily increase of 100,000 or 150,000 barrels.

Oklahoma seems sure to maintain its pace. Seminole settled production is holding up better than had been expected and the new pools are reasonably certain to more than offset any decline.

In West Texas the extension of pipe lines assures all the oil that the market can absorb.

January, 1928, opened with a daily total production in the United States of 2,372,000 barrels, or at the rate of 866,000,000 barrels a year. January, 1929, opened with a daily total production of 2,561,000 barrels or almost 200,000 barrels a day more than a year before. Last week's daily average rose to 2,649,000 barrels or at the rate of 967,000,000 barrels a year, with all the prospective increases from California, Oklahoma, Texas and Kansas to be added.

Meanwhile natural gasoline production is running 1,754,000,000 gallons a year, or two gallons of natural gasoline for every barrel of oil produced. And natural gasoline is already furnishing between 10 and 11 per cent of our total gasoline supply.

This is the situation and the outlook that has already brought a crude cut upon the Mid-Continent.

The general trend which these facts illustrate has been plainly visible for some time, yet drilling has been increasing rapidly for the past six months despite all warnings.

The temporary success of voluntary co-operation in checking the overproduction that began with the development of Seminole, West Texas and California seems to have caused a false optimism for which there was no real foundation. In fact, as has been pointed out in The Oil and Gas Journal at every opportunity, the only basis for optimism rests upon the continued expansion of the co-operative movement in curtailing unnecessary development.

The result is that the producing industry has been forced back to the old recourse of reducing prices to halt the unheeding. This has worked in brief periods of overproduction where heavy losses were endured with the belief that they could not last long. But there is no such consolatory thought today. This is not going to be a brief period. It has already lasted almost two years, and may last another two or more.

In fact, one specially qualified observer ventures the opinion that "the continued improvement in production and refining methods is placing the industry into a more or less permanent position of oversupply."

That means that prices will be determined by flush production with all the consequences that implies to the industry at large.

The customary attitude of "let us get it over with" is not likely to get us far this time. The situation calls for something more constructive than that. The good sense of the industry ought to devise a more businesslike program.

That is the hope for 1929.

Year of Enormous Initial Production

Fewer Wells Drilled in 1928 Than in Previous Year, but All Records in Initial Output per Well Were Broken

By James McIntyre

The tremendous total initial production of the United States in 1928, 8,365,778 bbls. from 12,526 oil wells completed in the same year, was not reflected in the total annual production of the country which fell several millions short of the total for 1927. The reason for this is that the initial production of new wells in the prorated West Texas fields is given not on actual 24-hour gauges but on the potential first 24 hours' production based on gauges of from one to a few hours. The initial production column indicates what the new wells are capable of producing in the first 24 hours, but in the vast majority of cases the figures represent the quantity of oil actually produced the first day. In the Yates and Hendricks Pools in West Texas to have permitted the new wells to flow to their capacity for even 24 hours would have meant a flood of oil that would have required the erection of great storage facilities to care for it. Potential initial production was arrived at after a brief wide-open test and the well pinched down to its permitted rate of daily production.

That explains why with an unprecedented total initial production the United States did not surpass its 1927 record in actual oil produced during the year.

There was a decline of 1,812 wells completed from the record of the year before. Not since 1924 have there been so few wells drilled as last year. The number of oil wells, 12,526, was 1,916 fewer than in 1927 and not much more than half as many as were drilled in 1920, when a record of 24,325 oil wells was established which has never been exceeded.

The 7,078 dry holes drilled represented 31.7 per cent of the total number, while the previous year 7,210 dry holes represented 29.4 per cent. The number of gas well completions fell off 214.

In the accompanying table is a record of the results in each of the years from 1916 to 1928 both inclusive. It will be seen that in 1916 the average initial production of all the oil wells completed was 86 bbls., or only a little more than one-eighth of the average initial production credited to the wells completed last year. Previous to last year the largest average initial production was in 1923 when it reached 371.

Deep Drilling in Oklahoma

The low average price of oil in Oklahoma kept down drilling operations in 1928. Oklahoma has become a deep sand area. Wells are producing from below 6,000 feet and the State's largest fields, in the Seminole-Pottawatomie area, are producing from below 4,000 feet. The shallow sand territory has been pretty thoroughly gone over and there is little hope of big new pools outside the portions of the State where the oil, where it exists, is buried from three-quarters of a mile to over a mile in depth. In 1928, 3,679 wells were completed in Oklahoma as against 4,513 wells in 1927 and the initial production dropped from 1,971,061 bbls. in 1927 to 1,016,000 bbls. in 1928. The average new oil well in 1928 produced 518.1 bbls. the first 24 hours as against 769.4 bbls. in 1927. The story of the development in Oklahoma last year centers pretty well in that part of the State southerly from the Seminole pools, or in lower Seminole County, Pontotoc County and Pottawatomie County, in which 1,018 wells were completed last year with a combined initial production of 855,292 bbls. The Little River and St. Louis Pool, a Wilcox sand development, were the busiest spots of the year, but at the close of the year Maud and Mission, both in the Greater Seminole area were being punctured with tests which could not be completed until early in the present year. The discovery of oil at a depth of 6,402 feet in Oklahoma County was one of the high lights of the year. The well was drilled to 6,498 feet and its production rose as high as 5,800 bbls. per day. The discovery of Wilcox sand in the Allen Pool, which lies on the border of Pontotoc and Seminole Counties was another important event but it was too late in the year to make it possible to determine whether it was to be a pool of the importance of the various Seminole pools.

New Pools in Kansas

Kansas showed a falling off in the number of wells completed, but the initial production showed an increase and there were fewer dry holes and more gas wells than in 1927. The leading discovery of the year was a pool of yet undetermined dimensions in the northern half of Sedgwick County and west of the famous Eldorado Field in Butler County, and which at the close of the year gave promise of developing a field comparing in importance to some of the Butler County fields of a decade or more ago. Another discovery was in Ellis County where a 250-bbl. well was completed in Section 5-12-17w, which may be the first well in a paying field. McPherson County developed some large gas wells in the course of the year. Kansas will be given an unusual amount of exploratory and development work this year unless strict conservation is adopted.

North Central and Panhandle Texas

The North Central Texas Field was a very active area last year. A total of 3,904 wells were completed but of these 1,810 were dry, representing 46 per cent of failures, most of which were shallow holes. Over half of the tests in Archer County were dry and less than half the Brown County wells drilled were productive. The Eastland district also had a very large dry hole percentage. Wilbarger led in initial production, 92,800 bbls. from 290 oil wells. Thirty counties in the area were drilled and 18 developed oil production. The Panhandle district showed only 396 completions as against 804 in 1927 and the initial production, 68,148 bbls., compared unfavorably with the record of 178,054 bbls. the year before. The Panhandle has 5,000 locations left in the 150-mile strip which comprises the oil country and over 90 per cent of these could be expected to produce oil, but they will not be drilled until a more favorable price for crude is assured because many of them would not produce enough to warrant drilling on the present market. The Panhandle continued to be a great gas-producing region and the 100 gassers drilled last year added much to the visible supply of that commodity.

Unprecedented Initial Production

The West Texas fields were given their greatest development last year even though drilling was restricted. Completed wells are recorded in 40 counties in the division and producing wells were completed in 13 of these, Crane, Crockett, Fisher, Glasscock, Howard, Irion, Jones, Loving, Mitchell, Pecos, Reagan, Runnels, and Upton, while the other 27 counties reported only dry holes of which there were 307 completed out of a total of 1,258 completed wells. The tremendous initial production credited to the West Texas division has already been explained. Pecos is credited with 2,951,484 bbls. potential initial production, an average of 14,757 bbls. per oil well. In Winkler County the 2,461,329 bbls. potential initial production meant an average of 5,387 bbls. per oil well. One can easily picture what a calamitous effect it would have had on the general crude market if the Pecos and Winkler County wells had been permitted to produce their full capacity and had the pipe lines been able to take care of the production. As the situation was handled, the production was choked down to a small percentage of the potential and the fields permitted to produce only

(Continued on Page 293)

SUMMARY OF COMPLETED WORK IN ALL THE FIELDS OF THE UNITED STATES IN 1928 AND 1927

		Comp.	Initial prod. (bbls.)	Dry holes	Gas wells	Oil wells	Ave. init. prod. (bbls.)
Eastern	1928	4,160	26,052	388	729	3,043	8.6
	1927	4,724	22,601	462	771	3,491	6.5
Central Ohio	1928	717	4,282	187	340	190	22.5
	1927	443	2,706	105	260	78	34.7
Lima	1928	204	6,098	55	19	130	46.9
	1927	262	2,973	35	16	211	14.1
Indiana	1928	206	2,420	82	38	86	28.1
	1927	246	3,766	107	31	108	35.0
Kentucky	1928	1,343	35,337	424	48	871	40.6
	1927	1,157	30,614	330	40	787	38.9
Tennessee	1928	66	3,163	18	7	41	77.1
	1927	67	3,953	16	2	49	80.7
Michigan	1928	154	19,753	26	29	99	20.0
	1927	264	4,327	44	3	217	19.9
Mississippi	1928	5	.....	4	1	.....	.....
	1927	5	.....	4	1	.....	.....
Alabama	1928	2	.....	2	0	.....	.....
	1927	0	.....	0	0	.....	.....
Illinois	1928	137	1,693	53	8	76	22.3
	1927	161	2,244	65	8	88	25.5
Kansas	1928	1,157	101,043	455	115	587	172.1
	1927	1,333	98,253	569	79	685	143.4
Oklahoma	1928	3,679	1,016,000	1,227	491	1,961	518.1
	1927	4,513	1,971,081	1,443	508	2,562	769.4
North Cent. Texas	1928	3,904	211,492	1,810	149	1,945	108.7
	1927	3,711	285,414	1,646	100	1,965	145.3
East Cent. Texas	1928	84	9,519	67	4	13	732.2
	1927	89	4,856	72	3	14	346.9
East Texas	1928	122	205	34	81	7	29.3
	1927	93	349	20	62	11	31.7
West Texas	1928	1,258	5,549,965	307	13	938	5,916.8
	1927	915	1,058,948	243	6	666	1,590.0
Panhandle	1928	396	68,148	89	100	207	329.2
	1927	804	178,054	87	94	623	285.8
Gulf Coast	1928	1,420	431,871	628	15	777	555.8
	1927	1,145	521,596	465	16	664	785.6
Southwest Texas	1928	742	43,878	311	200	231	189.9
	1927	868	12,503	394	181	293	43.5
North Louisiana	1928	528	10,585	235	229	54	165.4
	1927	726	40,223	297	177	252	159.6
Arkansas	1928	364	77,002	178	29	157	490.5
	1927	359	14,587	143	46	170	85.8
Montana	1928	359	22,601	120	56	183	123.5
	1927	493	29,446	196	54	243	121.2
Wyoming	1928	203	27,043	65	14	124	218.1
	1927	339	133,804	52	19	268	499.3
Colorado	1928	140	13,785	70	1	69	199.8
	1927	120	13,040	53	7	60	217.3
New Mexico	1928	66	2,214	45	6	15	147.6
	1927	113	2,944	66	6	41	73.0
Utah	1928	12	.....	7	5	.....	.....
	1927	14	.....	13	1	.....	.....
California	1928	903	681,629	191	....	712	957.3
	1927	1,182	479,905	281	....	901	532.6
Total	1928	22,331	8,365,778	7,078	2,727	12,526	667.9
Total	1927	24,143	4,918,197	7,210	2,941	14,442	340.4
Difference		1,812	3,447,581	132	214	1,916	327.5

Record of Past 12 Years

Total	1928	22,331	8,365,778	7,078	2,727	12,526	667.9
Total	1927	24,143	4,918,197	7,210	2,491	14,442	340.4
Total	1926	29,319	3,683,787	7,965	2,341	19,013	193.7
Total	1925	25,623	4,300,356	6,735	2,330	16,558	260.0
Total	1924	21,894	3,255,491	4,950	2,173	14,771	221.0
Total	1923	23,438	6,105,100	5,883	2,349	16,206	371.0
Total	1922	24,658	4,226,119	5,329	2,011	17,318	244.0
Total	1921	21,775	2,827,809	5,013	2,135	14,627	193.0
Total	1920	33,972	3,508,100	7,375	2,272	24,325	144.0
Total	1919	29,070	3,554,486	5,756	2,077	21,237	167.0
Total	1918	25,523	1,613,813	5,733	2,225	17,565	92.0
Total	1917	23,104	1,511,028	4,718	1,916	16,470	92.0
Total	1916	24,453	1,601,170	3,993	1,761	18,699	86.0

Year of Big Events in West Texas

More New Pools, More New Refineries, and More Field Work Than Ever Before and World's Deepest Well Was Drilled

By James H. Dameron
Staff Correspondent, West Texas Fields

Since discovery of the first pool in West Texas in 1920, the year 1928 closed by being the greatest year in development of the Permian Basin. More new pools were discovered, more refining projects completed and started, more development work carried on, a new era of conservation was accomplished, a banner year in production is recorded and the world's deepest hole and oil producer was drilled.

With such a record to boast of it is difficult to determine what is the most significant development of the year. A symposium reveals opinion divided between two major developments, conservation and discovery of commercial production in the Pennsylvanian horizon.

Three major areas in West Texas are throttled with proration under plans incorporated in official orders issued by the Texas Railroad Commission. Yates, the greatest potential producing field in West Texas, was curbed in its infancy by voluntary agreement among operators. Hendricks in Winkler County was the second field to go under proration.

Early in 1928 several operators started machinery in motion to accomplish proration. Numerous obstacles, difficult to overcome, confronted them and it required 45 days' effort to formulate a plan and have it in operation. In the meantime, Hendricks sailed into an intensive drilling campaign which sent its peak production to 322,000 bbls. the day before proration was effective. Production was brought down to 150,000 bbls. daily. The allowable production was later raised to 175,000 bbls., then lowered to 150,000 bbls. a few months later, and at the end of the year it was again raised to 175,000 bbls. daily.

The Hendricks plan is generally considered the most equitable plan practicable, but it worked hardships on several owners of leases. Recently three operators broke away from the plan by obtaining a temporary injunction restraining the Railroad Commission from enforcing their proration order in Winkler County. As this is written the case has not been brought up in court for a final hearing.

Soon after the Hendricks plan was in operation the Yates Pool operators had their proration plan incorporated under a Railroad Commission order. Permitted production of the pool has been gradually raised from 48,000 bbls. daily to a maximum of 100,000 bbls. daily, which will go in effect February 1. Following this the deep pay development in the Roberts Pool of southern Howard County threatened to get out of bounds. Operators in that area agreed on a plan of prorating the lime producing wells, which plan was sanctioned by the Railroad Commission. Those wells are now permitted to produce a maximum of 35,000 bbls. daily.

It is generally conceded that proration has saved West Texas operators millions of dollars and reflected in the general crude market. It not only prevented the production of a flood of oil in that territory but saved operators from building millions of barrels of temporary tankage. Its greatest accomplishment was in increasing the ultimate recovery, especially in Hendricks and Yates.

World's Deepest Well

Discovery of the new pools in West Texas was overshadowed by the discovery of Texon Oil & Land Co. in its No. 1-B University in the heart of the Big Lake Pool. At 8,520 feet the well encountered a rich pay in the Pennsylvanian. It is the deepest hole yet drilled and the deepest producer of oil or gas. At the present it is making 1,500 bbls. a day of 56 gravity oil.

This discovery opens the way for deeper drilling in West Texas and enhances the value of those pools now producing from the Permian. Drilling for deep Pennsylvanian in the basin will be approximately as deep as the drilling of the Texon company's well. On the edges of the basin and further back from it holes will not have to be carried so far down.

Such deep drilling, however, is not likely to be carried on for some time to come. The cost makes it highly expensive to drill such deep wildcat tests and the time required is another element. The Texon company's well started off with a production of 66 bbls. on its first full 24-hour gauge. In 40 days' time production climbed to 1,500 bbls. and is still increasing. Simultaneously the gravity of the oil climbed as did the gas flow.

Two New Pools in Winkler

Two new pools were discovered in Winkler County and the Hendricks Pool made its impressive record in 1928. Approximately 4¼ miles was added to the Hendricks Pool producing territory during the year. Its biggest and most sensational extension was Cranfill & Reynolds' Winkler County record well. Their No. 1 Hendricks, C SE SW SW Section 33, Block 26, was rated at 60,000 bbls. or better in 24 hours, and opened the prolific north end of the pool to rapid drilling. About a mile was added to the southern end of the pool during the year and some of the best wells in the field were completed in that section the latter part of 1928.

Opening of Leck

Soon after proration was started in Hendricks, fuel was added to the overproduction fire in Winkler County by the opening of the Leck area by Gibson & Johnson and Kesslar & Logan. Early in May their No. 1 Leck, CSL N half SW Section 3, Block 74, came in showing for a gusher. Water shortly drowned the hopes of a gusher well, but the well was finally completed making better than 1,000 bbls. of net oil from a total depth of 3,167 feet. Three other wells have been completed since discovery and about a dozen are drilling.

When the well showed the potentialities of the area, operators started to formulate plans to have it controlled under a separate proration plan than the one governing the output of Hendricks. Hendricks is under a blanket proration order covering Winkler County. This plan failed to materialize.

O'Brien Pool Erratic

Early in September, Sid Richardson, Frank Kelsey and White Eagle Oil & Refining Co. opened the O'Brien Pool in southern Winkler County when No. 1 Stockton, NE cor. Section 50, Block F, 3½ miles south of Hendricks, made a good showing. The well was deepened and flowed at the rate of 2,500 bbls. daily. It declined rapidly and started making water.

Subsequent drilling proved the area to be erratic with wells on all sides of the discovery well running low. One well has been completed north of the discovery well for a fair producer.

Yates Pool a Marvel

Yates, in Pecos County, was extended in all directions but the drilling of that pool was not as rapid as the drilling that characterized the Hendricks Pool. Some of the greatest shallow producers in the history of the industry were completed in Yates. A list of these wells will be found in another article of this issue dealing with the Yates Pool.

Pecos County had a few good bids for new pools during 1928 but only one was opened. That was the Pecos Valley Pool north of Fort Stockton. On its fee land Pecos Valley Oil Co.'s No. 1, Section 22, Block 10, was completed a 120-bbl. well in the pay at 1,626-28 feet about the middle of November. This well was flanked by dry holes. No new development has been started there because of the absence of pipe line facilities.

Ward County Productive

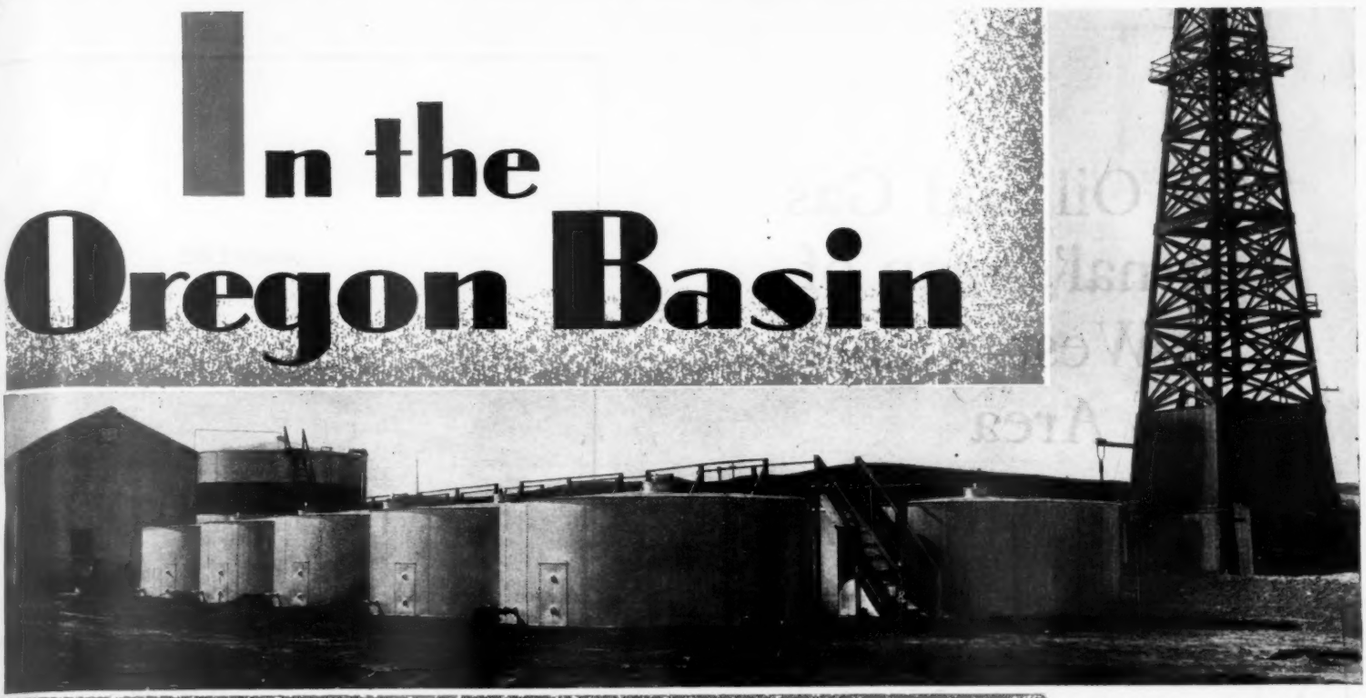
Going on northwest of this well into Ward County, Shipley and associates' No. 1 Hayzlett, Section 17, Block 5, opened Ward County to production early

(Continued on Page 118)

West Texas
Daily Average and Monthly Production in 1928

UPTON AND CRANE COUNTIES:	January (bbls.)	February (bbls.)	March (bbls.)	April (bbls.)	May (bbls.)	June (bbls.)	July (bbls.)	August (bbls.)	September (bbls.)	October (bbls.)	November (bbls.)	December (bbls.)	Total (bbls.)
McCamey-Taylor—													
Daily average	14,908	14,801	13,006	12,546	13,077	12,016	12,304	12,060	10,729	11,289	10,882	10,410	
Month	462,148	429,329	403,186	376,385	405,287	360,474	381,416	373,861	321,863	349,984	326,457	322,714	4,513,104
Waddell—													
Daily average	.....	.....	.....	.....	.....	.....	15	16	15	17	18	17	
Month	.....	.....	.....	.....	.....	.....	465	465	450	530	532	527	2,969
Church-Fields—													
Daily average	78,939	62,849	47,093	46,160	37,142	39,815	34,839	33,780	30,152	30,277	28,992	29,054	
Month	2,447,109	1,822,625	1,459,883	1,384,807	1,151,448	1,194,459	1,080,006	1,047,177	904,567	938,592	869,771	900,661	16,201,106
McElroy—													
Daily average	18,670	18,164	16,046	15,693	15,178	17,088	14,801	13,969	13,695	12,381	13,243	13,011	
Month	578,770	526,745	497,426	470,785	470,518	512,651	458,835	433,043	410,856	383,813	397,298	403,341	5,544,081
Total Upton-Crane:													
Daily average	112,517	95,814	76,145	74,399	65,398	68,919	61,959	59,825	54,591	53,964	53,135	52,492	
Month	3,488,027	2,778,599	2,360,495	2,231,977	2,027,353	2,067,584	1,920,722	1,854,546	1,637,736	1,672,920	1,594,058	1,627,243	25,261,260
GLASSCOCK COUNTY:													
Daily average	.....	.....	.....	.....	201	.....	41	.....	.....	199	.....	1,124	
Month	.....	.....	.....	.....	6,243	.....	1,267	.....	.....	6,176	.....	34,851	48,537
WARD COUNTY:													
Daily average	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	114	
Month	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	3,534	3,534
WINKLER COUNTY:													
Daily average	87,952	137,128	181,583	220,395	170,468	148,566	182,270	182,404	173,053	148,772	147,351	145,648	
Month	2,726,512	3,976,710	5,629,073	6,611,854	5,284,523	4,456,686	5,650,368	5,654,538	5,191,548	4,611,959	4,420,536	4,515,108	58,729,415
PECOS COUNTY:													
Daily average	49,708	48,677	47,229	43,076	51,891	52,477	69,630	69,731	70,925	95,153	71,955	71,271	
Month	1,540,948	1,411,642	1,464,099	1,292,286	1,608,618	1,574,310	2,158,527	2,161,650	2,127,736	2,949,767	2,159,862	2,209,406	22,658,851
REAGAN COUNTY:													
Daily average	22,286	20,582	21,182	24,789	21,038	17,610	17,923	17,105	17,342	17,387	15,934	17,663	
Month	690,866	596,884	656,642	743,615	652,190	528,309	555,627	530,251	520,269	539,000	478,038	547,552	7,039,243
HOWARD COUNTY:													
Daily average	6,546	4,179	3,181	3,614	4,227	4,725	4,250	10,200	21,184	27,856	28,988	24,567	
Month	202,926	121,206	98,611	108,417	131,030	141,751	131,759	316,222	635,536	863,537	869,662	1,071,579	4,692,236
FISHER COUNTY:													
Daily average	.....	.....	225	176	235	361	739	968	735	683	860	739	
Month	.....	.....	6,975	5,281	7,292	10,833	22,918	30,000	22,063	21,201	25,814	24,769	177,146
SCURRY COUNTY:													
Daily average	.....	.....	32	.....	.....	36	25	24	31	30	31	30	
Month	.....	.....	992	.....	.....	1,080	786	756	930	930	930	936	7,340
ECTOR COUNTY:													
Daily average	10	10	9	10	10	9	9	8	6	7	6	5	
Month	310	300	279	300	310	270	279	250	180	217	180	155	3,039
LOVING COUNTY:													
Daily average	81	76	121	106	103	136	235	113	309	366	280	314	
Month	2,511	2,210	3,751	3,180	3,186	4,068	7,285	3,502	9,281	11,345	8,400	9,729	68,448
CROCKETT COUNTY:													
Daily average	2,002	1,875	1,773	2,081	1,963	2,416	2,615	3,106	2,604	2,558	2,373	2,562	
Month	62,062	54,375	54,963	62,442	60,849	72,471	81,057	96,288	78,122	79,326	71,375	79,428	853,758
MITCHELL COUNTY:													
Daily average	3,469	3,250	3,387	3,110	2,970	3,011	2,833	2,823	2,788	2,778	2,936	3,533	
Month	107,539	94,264	104,997	90,290	92,074	90,338	87,821	87,512	83,645	86,100	88,095	78,520	1,091,196
Daily average	284,571	311,591	334,867	371,663	318,504	298,256	342,529	346,307	343,568	349,753	323,894	329,123	329,433
Total 1928	8,821,701	9,036,190	10,380,877	11,149,642	9,873,668	8,947,700	10,618,416	10,735,515	10,307,046	10,842,478	9,716,950	10,202,810	120,632,993
Total 1927	2,126,352	1,857,800	2,331,510	2,752,080	3,514,935	3,333,150	3,490,693	4,255,804	5,405,430	6,441,924	6,582,410	7,596,569	49,689,657
Difference	6,695,349	7,178,390	8,049,367	8,397,562	6,358,733	5,614,550	7,127,723	6,479,711	4,901,616	4,400,554	3,133,840	2,606,241	70,943,336

In the Oregon Basin



On Well No. 1 of the Wisconsin Holdings Corporation in the Oregon Basin. Butler Bolted Tanks.

SEE how large the clean-out openings are. Butlers measure 2 feet by 4 feet! They are not back breakers. They are convenient for an entire cleaning out of the tanks. Because of the size of these openings the work can be done easily and in safety. *All bolts are removable from the outside!*

The demand for Butler Bolted Tanks is due in large part to speedy and dependable erection.

Bolt holes are accurately punched. They are accurately placed. The sheets are large. All these advantages allow the erection gang to put up Butler Bolted Tanks speedily. In many cases only one day's work or *less* is needed.

The steel used in all Butler Bolted Tanks is blue annealed copper or 3/16″ and heavier tank plates, where added strength and rigidity are needed.

All the advantages of Butler Bolted Tanks are illustrated and described in the "Oil Field Tanks" catalogue. A copy will be sent promptly on request.

Any kind of welded tank made to your specifications. Also, bolted tanks up to 25,000-barrel capacity.

BUTLER MANUFACTURING COMPANY
KANSAS CITY MO. BUTLER MINNEAPOLIS, MINN.

BUTLER BOLTED TANKS

Butler Products include: Ready-Made Steel Buildings, Cans, Funnels, Buckets, Measuring Pumps, Truck Tanks, Underground Tanks, Storage Tanks, Bolted Tanks, etc. Pipe that can be used as conduit, double well casing or other ways.

THESE reliable dealers erect Butler Bolted Tanks and are ready to serve you speedily:

M & V Tank Co., at Wichita Falls, Olney, Nocona, Cross Plains, Albany, Cisco, Isom, and Brownwood, Texas.

Drane-Humphrey Co., at San Angelo, Big Lake, Pyote and McCamey, Texas, and Roswell, New Mexico.

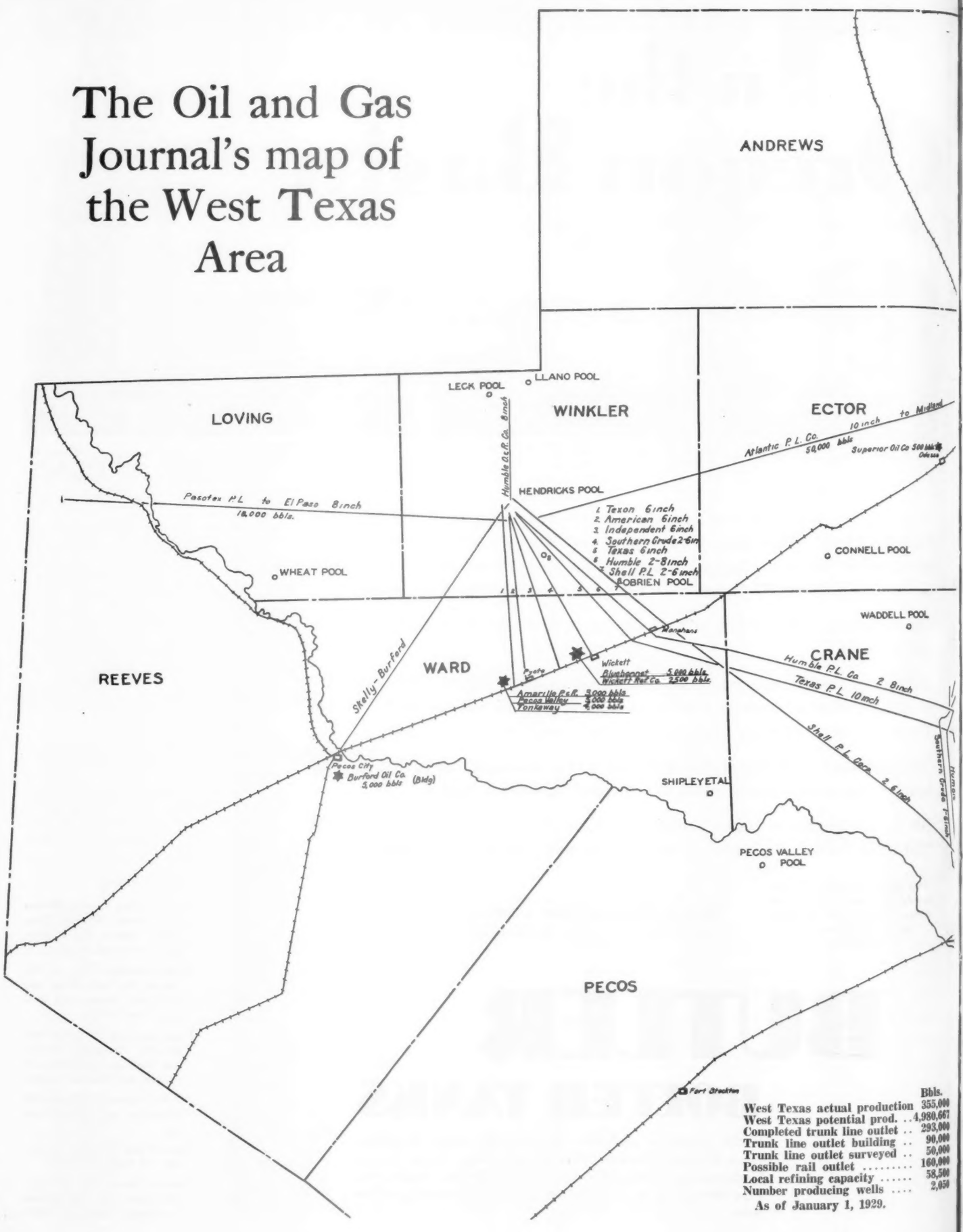
Drane Tank Co., at Tulsa, Holdenville, Seminole, Hallett and Shawnee, Oklahoma; El Dorado and Madison, Kansas.

M. A. Trimmer, at Blackwell, Oklahoma, and Oxford, Kansas.

Keyes-Butler Tank Co., at Casper and Cody, Wyoming.

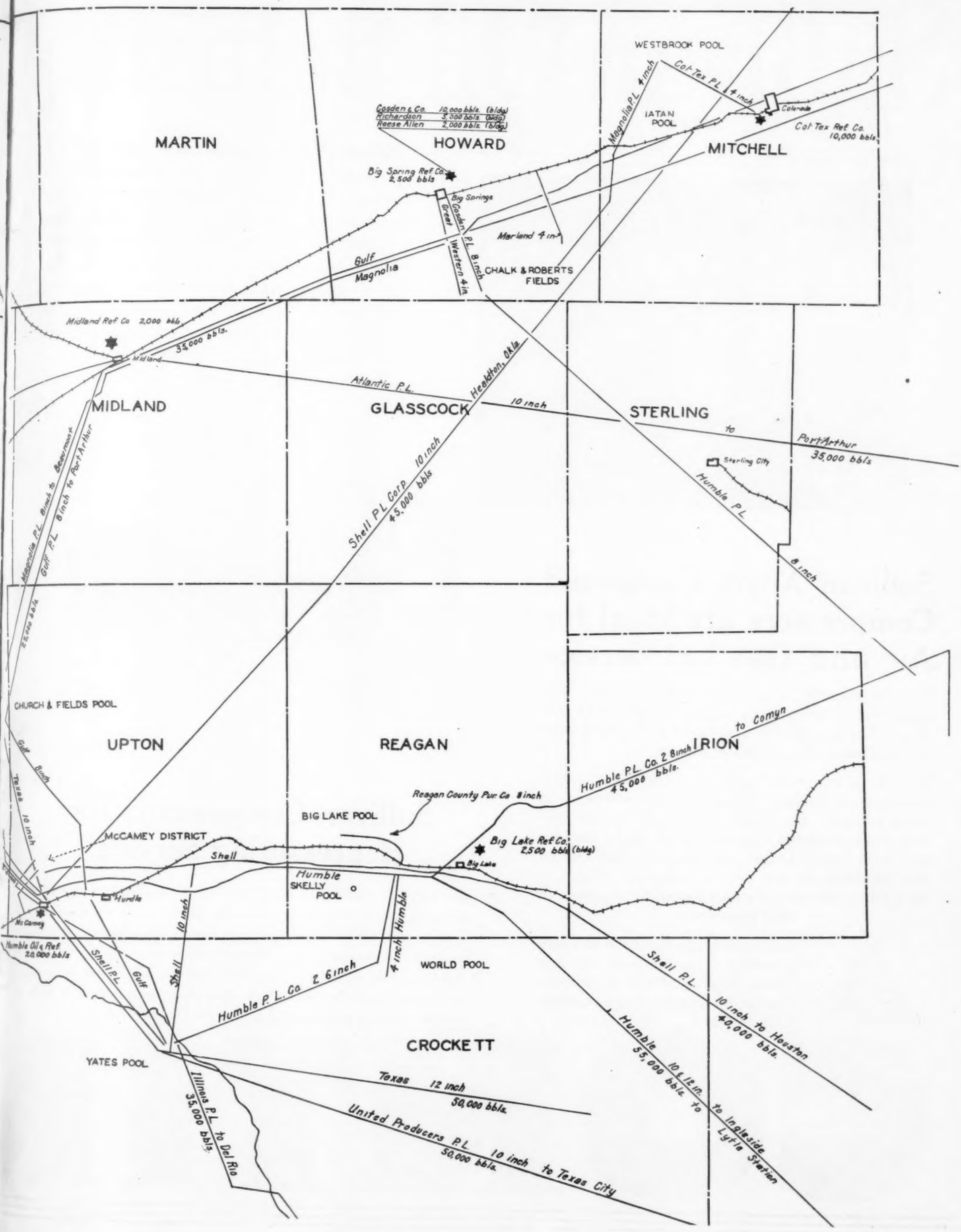
Thomas Moran, at Oil City, Shreveport and Georgetown, Louisiana; Muskegon, Mich.

The Oil and Gas Journal's map of the West Texas Area



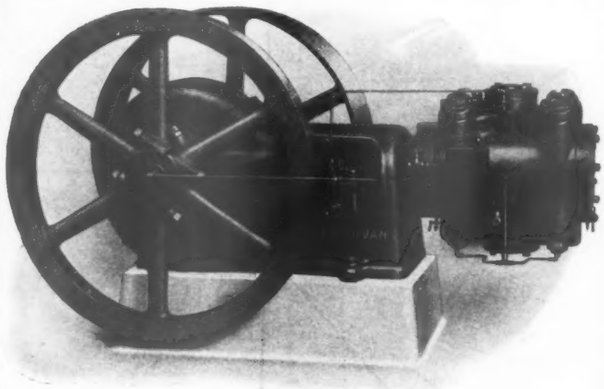
	Bbls.
West Texas actual production	355,000
West Texas potential prod.	4,980,667
Completed trunk line outlet	293,000
Trunk line outlet building	90,000
Trunk line outlet surveyed	50,000
Possible rail outlet	160,000
Local refining capacity	58,500
Number producing wells	2,050

As of January 1, 1929.


MARTIN
HOWARD
MITCHELL
MIDLAND
GLASSCOCK
STERLING
UPTON
REAGAN
IRION
CROCKETT
WESTBROOK POOL
IATAN POOL
CHALK & ROBERTS FIELDS
CHURCH & FIELDS POOL
McCAMEY DISTRICT
BIG LAKE POOL
SKELLY POOL
WORLD POOL
YATES POOL
Cosden & Co. 10,000 bbls. (bldg)
Richardson 3,000 bbls (bldg)
Reese Allen 2,000 bbls (bldg)
Big Spring Ref Co 2,500 bbls
Big Springs
Great Western P.L. 8 inch
Marland 4 in.
Gulf
Magnolia
Magnolia P.L. 4 inch
Col-Tex P.L. 4 inch
Colorado
Col Tex Ref Co. 10,000 bbls
Midland Ref Co 2,000 bbls
35,000 bbls.
Midland
Atlantic P.L.
Houston, Okla
10 inch
Shell P.L. Corp 10 inch 45,000 bbls
Magnolia P.L. Branch to Beaumont
Gulf P.L. 8 inch to Port Arthur
25,000 bbls
to Port Arthur 35,000 bbls
Sterling City
Humble P.L. 8 inch
to Comyn
Humble P.L. Co. 2 8 inch 45,000 bbls.
Reagan County Pur. Co 8 inch
Big Lake Ref Co. 2,500 bbls (bldg)
Big Lake
Shell
Humble
Hurdle
McCamey
Humble Oil & Ref 20,000 bbls
Gulf Texas 10 inch
Shell P.L.
Gulf
Shell 10 inch
4 inch Humble
Humble P.L. Co 2 6 inch
Shell P.L. 10 inch to Houston 40,000 bbls.
Humble 55,000 bbls. 10 & 12 in. to Ingleside Lytle Station
Texas 12 inch 50,000 bbls.
United Producers P.L. 10 inch to Texas City 50,000 bbls.
Illinois P.L. to Del Rio 35,000 bbls.

Sullivan Oil Industry

SULLIVAN Compressors for the oil industry are designed especially to meet oil country requirements as to pressures, capacities, and ability to withstand severe usage. Every step in their manufacture takes place in the two great SULLIVAN factories, where all SULLIVAN equipment is built to the highest engineering standards, and according to the most up-to-date practice in design and construction.



Sullivan Angle Compound Compressors are Ideal for Air and Gas Lift Service

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This is a compact, comparatively light, easily transported machine which gives pressures up to 1,000 pounds. Its *Angle Compound* design permits light weight with extra large safety factors, and with lower bearing pressures. This design also accounts for the lack of vibration, which in turn allows the use of small foundations and even skid mountings.

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CONTIN

Compressors and Air Tools

The SULLIVAN Engineering Department, with 30 years' accumulated knowledge and experience in building and using air power machines, is at the service of operators who use this equipment. SULLIVAN Compressors for the oil industry and SULLIVAN Air Tools and spare parts are available through CONTINENTAL Stores.

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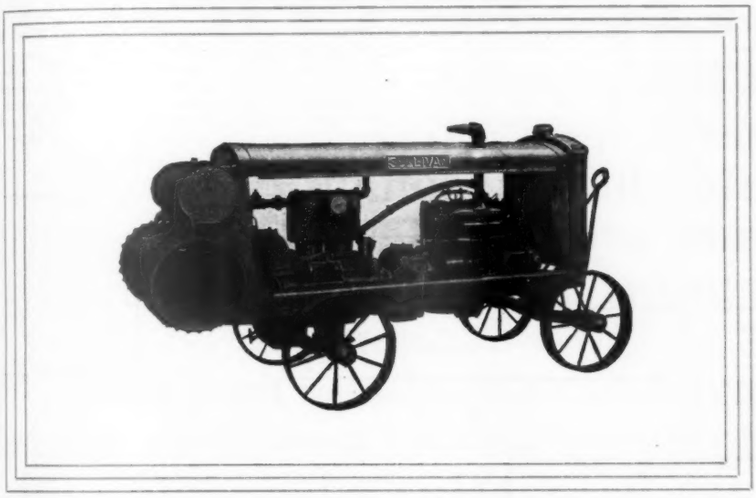
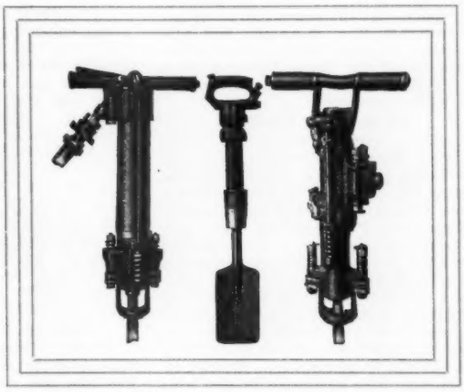


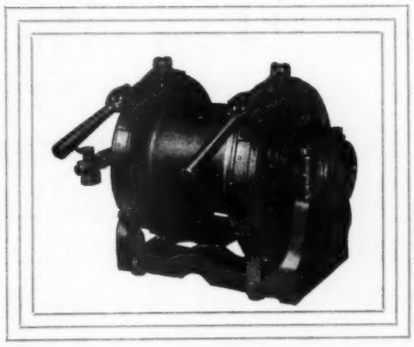
Sullivan "Vibrationless" Portables Furnish Dependable Air Power

SULLIVAN Portable Compressors supply dependable air power for running Turbinair Hoists and various air tools used in construction work of all kinds. These compressors are so correctly designed and so finely built that a glass of water filled to the brim will stand undisturbed on the frame of a machine running at full speed. "Vibrationless" Compressors, powered by Gasoline Engines, are available in capacities of 110, 160, 220 and 310 cu. ft., and on steel wheels, trailer trucks, motor trucks, or skids. Ask for Catalog 83-F.



Sullivan Air Tools Speed Construction Work and Save Labor

Sullivan Rotator Rock Drills, Concrete Breakers, and Clay Spaders save time and labor in excavating and other oil country construction. Ask for Catalogs 81-S, 81-I and 81-N.



Sullivan Turbinair Hoists Save Time in Hoisting and Hauling

This hoist, weighing only 345 pounds, will lift a ton on single line, or pull a 50-ton car on level tracks. Extremely useful in erecting tanks, spotting cars, loading and unloading material, etc. Air and electric models are available, with one or two drums. Ask for "Handy Hoisting and Hauling."

NENTAL

YEAR OF BIG EVENTS IN WEST TEXAS FIELDS

(Continued from Page 112)

in November when it started heading at 2,481 feet. It was variously estimated to be a 125 to 175-bbl. producer. The owners made a mystery well of the test to a great extent.

Later when production started to decline 3-inch tubing was run and the well came back making between 125 and 150 bbls. daily. At the present it is making an estimated flow of around 100 bbls. The same situation that is retarding development of the Pecos Valley Pool is likewise holding back development around this wildcat producer.

Oil in Fisher County

Another county was added to the ranks of West Texas producing counties by The Texas Company's No. 1 Stephens, Section 79, Block 1, H.&T.C. Survey, Fisher County. This well was the first pool opener of 1928, in West Texas, having been completed early in January with an initial production of approximately 300 bbls. at 3,275 feet.

It is another area that has not been developed. Lease owners have drilled just enough to hold leases and awaiting a better market for the sweet oil produced in the Stephens Pool. Seven producers have been completed in that area and have a production of around 800 bbls.

Two New Pools in Jones

On over to the adjoining county to the east two new pools were discovered in Jones. North of Noodle Creek, Hutson & Weaver's No. 1 Smith, Section 51, Block 18, H.&T.C. Survey, opened the Bickley Pool the latter part of January at 2,533 feet. The well was not completed for several weeks and made about 50 bbls. of oil and some water. This well later proved to be on the northeast edge of the Bickley Pool which had the starting of its development the latter half of 1928.

South of the Bickley Pool a short distance Hucony Gas Co., Atkinson and Sandefer, opened the Tiner Pool in May when No. 1 Tiner, Section 14, Block 19, H.&T.C. Survey, flowed 850 bbls. from 2,533 feet. Several good wells were completed in both of these pools and Jones County production rose to better than 6,000 bbls. daily.

Skelly Pool in Reagan

The remaining new pool discovered in 1928 was the Skelly Pool in Reagan County, which was opened early in the year but has not developed into anything like the Big Lake Pool to the north of it. Skelly Oil Co. and Utah Southern Co.'s No. 1 University, Section 33, Block 8, made 40 bbls. of 32.5 gravity oil early in February from 3,131-53 feet. It encountered sulphur water at 3,157 feet and was plugged back to 3,153 feet and completed. The well is averaging around 35 bbls. daily and two other producers have been completed in the pool. Two dry holes were drilled to the west and one about 2 miles southeast.

Howard County's Big Year

Howard County had a great year in 1928 with the development of the 2,900-foot lime pay zone and the discovery of two other lime producing zones, the 2,500-foot pay and 2,200-foot pay. Discovery of the latter pay zone extended the Roberts-Settles area 3 miles to the west and opened up a wide stretch of territory for future development.

Sun Oil Co. opened the 2,500-foot pay with its No. 1 Settles in Section 135, Block 29. Soon after the first of the year the well made 400 bbls. on a 4-hour swab test from 2,530-39 feet, but it would not flow because of the lack of gas pressure. Operations were suspended for several months until proration went into effect in Howard County. The well was then placed on production and made 1,685 bbls. on its proration test.

About half a dozen wells have been completed in this zone since its discovery but Howard County seems assured of considerable development during 1929 and this zone may prove to be important.

In August Henshaw Oil Corp. extended the pool to the west and opened the 2,200-foot lime zone with No. 1 Settles-A Section 6, Block 32, T-2-S when it made 60 bbls. per hour at 2,208-10 feet. Gradual deepening increased the output of the well to approximately 7,000 bbls. daily. It went dead and was deepened to 2,223 feet and completed as a 5,332-bbl. well on a proration test.

This new discovery resulted in several fair sized acreage sales in that vicinity, the largest of which was the purchase of the Henshaw Corp.'s interests in that and other sections by the American Maracaibo Co. At the close of the year considerable development work was in progress to the east, south and southwest. A dry hole to the northwest has blocked development in that direction to an extent. The territory to the south and southwest of the discovery well is expected to be the most intensely developed the first part of the year.

With the opening of 1928 West Texas had 1,224 wells producing around 260,000 bbls. daily. Yates was being curbed with proration and the necessity of pinching in several wells in the Church & Fields Field held that area under its full strength. Within the year's time production increased approximately 100,000 bbls. with proration holding three areas in check.

During that time the outlet for crude was increased and the market strengthened. At the opening of the new year the trunk lines were in a position to handle approximately 300,000 bbls. daily and 90,000 bbls. of additional line capacity was being built. Railroads, local refineries and the transporting companies can easily handle around 400,000 bbls. of production daily if it was demanded.

Runs to storage, however, have been increasing during recent weeks and at the close of 1928 approximately 50,000 bbls. of West Texas crude was going to storage daily. This did not reflect in the market. Several crude contracts expiring about this time and when they were renewed, they were made on the basis of the posted price plus a gathering charge. A year ago some contracts were made below the posted price and f.o.b. tank cars at loading racks south of the Hendricks Field.

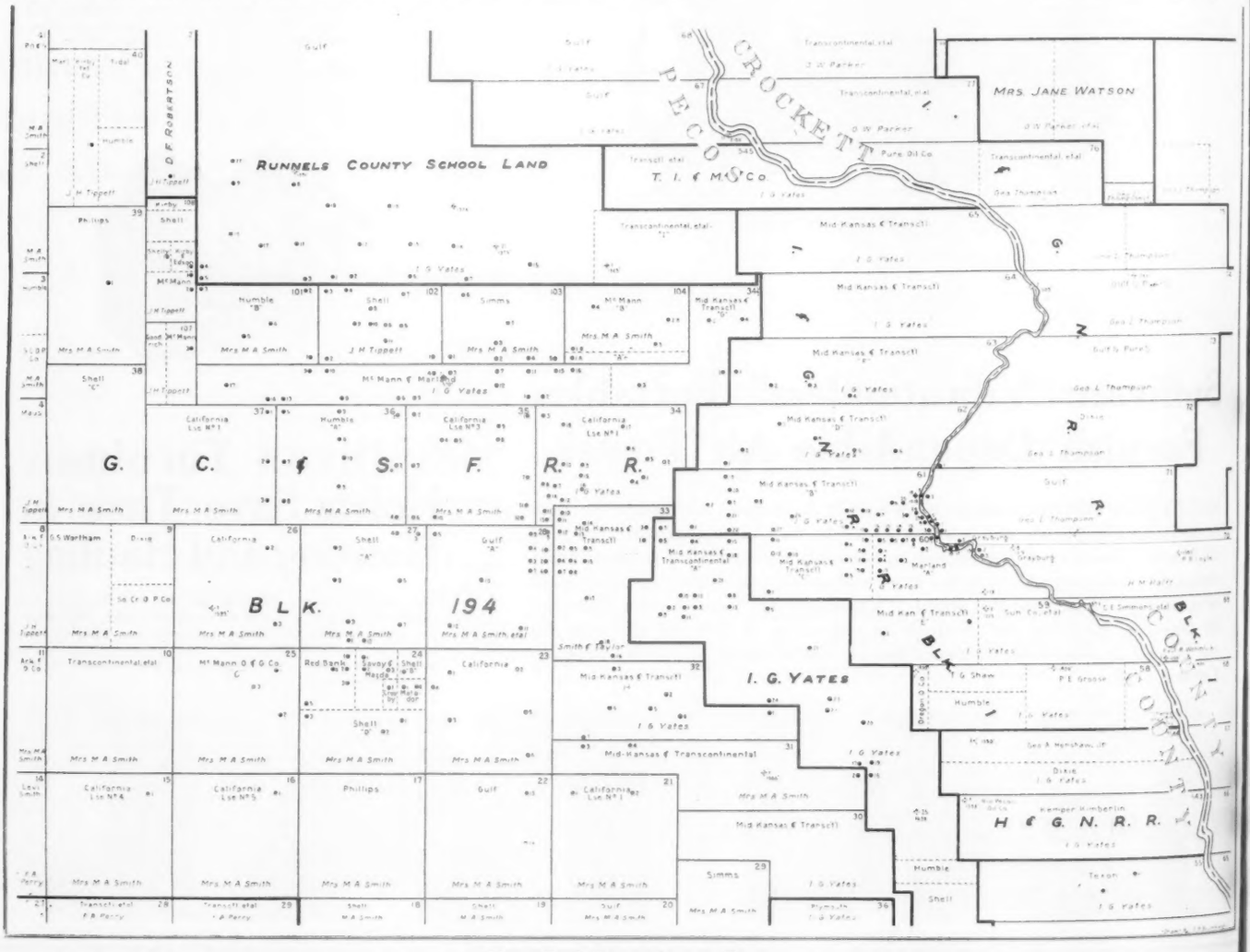
Storage Room 15,221,217 Bbls.

Development in West Texas has resulted in an enormous tank building campaign in practically every field except Yates. On January 1 there were 726 tanks scattered over West Texas and they had a combined capacity of 50,566,000 bbls. At the same time the crude in storage totaled 35,344,703 bbls., leaving room for 15,221,297 bbls.

Most of this storage is in the Midland district. Midland County has a storage capacity of 12,500,000 bbls. Winkler County has 12,516,000 bbls, and Ward County has 5,660,000 bbls. Yates, the greatest potential area in West Texas, has the least storage. It has a steel storage capacity of 893,000 bbls. and about 500,000 bbls. of oil in storage.

West Texas experienced another great year in the construction of refineries and

(Continued on Page 193)



Yates Pool, Pecos County, Texas.

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Sane Drilling Policy in Oklahoma

Production Kept Down by Conservative Operators, but Two Great Pools Were Developed in 1928

By J. L. Dwyer
Staff Correspondent, Oklahoma Fields

Probably the most expressive manner of reviewing the oil activity of Oklahoma during 1928 would be to call it just another year and let the matter rest, for when it is thoroughly inspected from all angles, there has been little to endear the year to the hearts of the oil producers. The crude oil price, which is the only barometer of the industry for the producer, was stationary almost all year, and stationary at a point which left a very scant margin for profit in the majority of cases, and which was utterly insufficient to permit any profit at all in the operations of the older fields where production problems include the work of occasional pulling of rods and tubing.

With this situation prevailing for the entire year, there was little in the calendar to cause rejoicing of the producers, and in the main they have adopted a policy of drilling as few wells as necessary, and waiting until such time as an improved price condition will permit them to make substantial increases in their operations. This applies to many of the smaller units and individuals who have been active in the Oklahoma fields for many years. In the important territories such as Greater Seminole and St. Louis, there naturally was a rush to drill and secure the oil from the wells on the leases, and in this it was a case of every man for himself.

There are dozens of small companies in Oklahoma which did not drill a well in 1928, and the sentiment of the majority of these indicates that they will adopt a similar policy during 1929.

The real progress which was made in the Oklahoma fields during 1928 was of an economic nature rather than of a mechanical nature, although there was some very constructive work done in the latter line. The greatest work to be recorded was in the preservation of the principles which formed the original Seminole shut down committee, and the stopping of wildcat wells. The year was bad enough, but had it not been for the two things mentioned above, 90 per cent of the oil companies operating in the Oklahoma fields would have been bankrupted by a crude oil price which would have been far below the current level.

In this work, the various committees served a splendid purpose, and were responsible for some exceptional diplomacy in the handling of wells which were potential pool openers. Conservation, cooperation and co-ordination must be chalked down as having made marked progress among the oil producers during 1928. There were innumerable instances of wells being drilled into a sand, and then shut down when an agreement was reached to restrict drilling activities, and the Allen Field in Pontotoc County, where Wilcox sand production was discovered, is a notable example of this. There were other instances of wells reasonably close but covering a region which indicated the presence of a major pool, and yet the co-operative spirit was sufficient to hold back the development for a common good. The Little River Field was a notable example of such a condition.

There were various small spots in which wells were reported running high, and the owners voluntarily shut down the well, even before the producing formation was touched, and the Mission Pool, where the Gypsy Oil Co. kept a well shut down for one year, illustrates the attitude which was in existence regarding that situation.

In reviewing the various pools of the state, it must be admitted that considerable progress was made in the matter of working out shut down agreements and well spacing plans, and while many of the attempts of the committees to handle the situation were not 100 per cent successful, the fact that in the majority of cases they were able to effect an agreement of any kind between oil operators is in itself sufficient proof that the attitude of the operators has been gradually undergoing a change.

Encounter Stumbling Blocks

In working out the difficulties of shut down agreements in the state the process has generally been hindered by one or two individuals in a given pool who declined to participate in the program, and insisted upon taking the fullest advantage of their own property. It was in trying to work out the shut down agreement in the St. Louis Pool of Pottawatomie County that the Seminole advisory committee met one of the stumbling blocks which could not be overcome, and as a result the St. Louis Pool never was placed under any real curb.

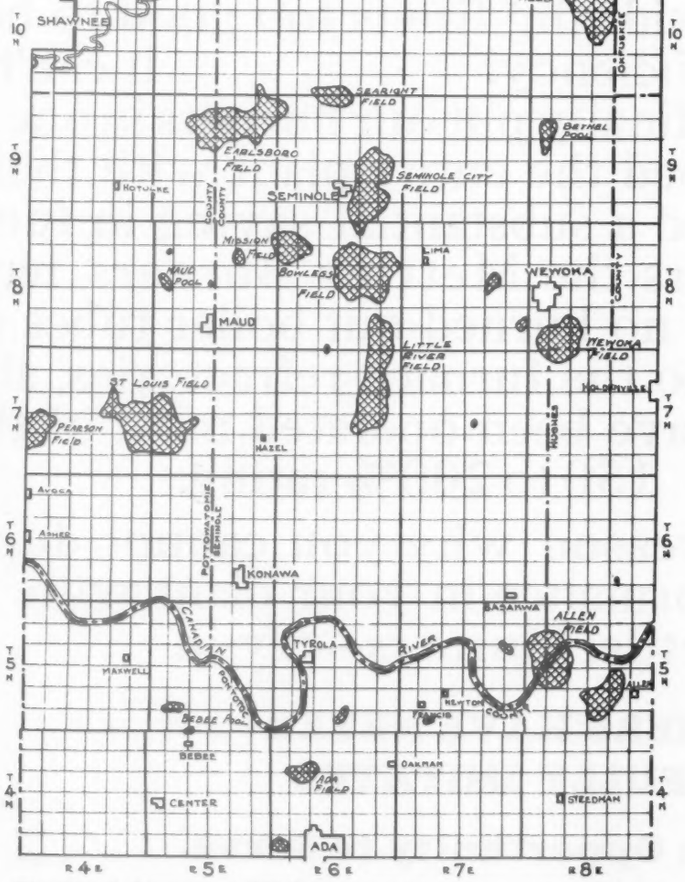
Notwithstanding the few spots where the committee failed to solve the problem, great progress was made in bringing to the appreciation of the individual operators the fundamental economic problem of holding back production in accord with the requirements of the consuming market, and this constitutes genuine progress.

Considering the future in regard to problems of this nature, unless some legislation is enacted affecting shut downs, it seems that the most suitable manner of restricting oil production would be for the Texas oil operators to shut down the Oklahoma fields, and the Oklahoma operators to shut down the Texas fields. In this manner, a most effective shut down could be arranged.

Mechanical Progress

In the matter of mechanical progress in the oil fields, there were several refinements in the use of the air-gas lift equipment which have aided that method of production to handle its output more economically and which have made possible the use of this equipment to flow wells of a very small daily yield which previously had been put on the pump. The air-gas lift now has fully established its place in the Oklahoma fields, and during the past year it has enjoyed a very wide application. A much improved understanding of the uses of this type of equipment has disspelled a great deal of the doubt which formerly attended its being given a try-out, and no longer is it asked "Will this be an air-gas lift field?" but as soon as the wells are drilled into the sand, compressors and equipment are put into place. Former practices did not include this method, and it was common to wait until some idea of the well's peculiarity was obtained before air-lift equipment was even considered. Modern engineering skill has liberally contributed to the use and adoption of the air lift to all production of good size where a sufficient gas pressure is present to bring the fluid into the drill hole.

In deep production, the air lift seems to have furnished the answer to lifting costs, and with the steadily increasing depths at which exploration has displayed the position of the Wilcox sand, the future of the air-lift seems assured.



The "South Country" of Oklahoma, comprising parts of Seminole and Pottawatomie Counties. This region has been the scene of many prominent pools, and much is still expected regarding its possibilities.

Overproduction Most of the Year

From a storage point of view, Oklahoma although it produced 28,521,173 bbls. less during 1928 than it did during 1927, put oil into storage during the greater part of the year. One purchasing company alone increased its stocks of crude by almost 11,000,000 bbls. during the year, although all of this amount did not come from the Oklahoma fields, part of it coming from Texas. There was no perceptible weakness in the crude market during the first 11 months, and the majority of crude oil purchasing agencies manifested their desire to take on any and all new connections in the Oklahoma fields where a good grade of oil is produced. It is possible that this attitude was more a matter of protection against future needs than any anxiety for current crude supply, for in the latter, all of the larger purchasing agencies were amply protected. There was an exceptional demand for crude oil from the Burbank Field of Osage County, the Papoose Pool of Okfuskee-Hughes Counties, and the Lyons-Quinn-Deaner region of Township 11-11 in Okfuskee County, and the prospects of a continued demand for these grades of crude for lubricating manufacture seems good. Considerable premium paying is reported for Burbank crude, with little available on the open market.

Wildcatting, the preliminary work which is the forerunner of every major oil operation was rather quiet during 1928. The number of wildcat operations in the state was comparable with the work of that nature which was done in 1927, and at the close of 1928, there were approximately 165 wildcats being drilled in the state. The majority of these were confined to the south country in Seminole and Pottawatomie counties and the region to the south and west of these sections. The northern Oklahoma wildcat play which two years ago dominated the work of this nature lagged in interest, and there was a noticeable slowing up of work in the counties along the north border of the state. Kay and Grant counties which have had a great deal of exploratory work done within their borders were exceptionally quiet all year, and the results showed little to enthuse regarding their showings.

There was a scattered activity through Hughes, Okfuskee, Okmulgee, and some other of the older regions of the state, and while some good oil and gas wells were found as a result, there were few important developments in these regions last year. Hughes County still seems to have several good gas fields discovered each year, and while these are exceptionally small in area, the individu

wells have good yields. The Gilcrease and Cromwell sands found in this county at an average depth of 3,100 and 3,400 feet respectively furnish the bulk of the gas production.

Major Companies Wildcatting

There has been one great change in the matter of wildcatting which is worthy of note, and that is the transition from the work being done by the small company or individual to the larger units. Examining the records of 1926, it is found that 90 per cent of the wildcat wells being drilled by small operators and small companies, and examining the records of 1928 it is found that about 90 per cent of the wildcat wells were drilled by the major companies. There has been a sudden decrease in the work of promoting wells, and selling off sufficient acreage to finance the tests. One of the answers to this is the deeper position of the sands, but the main reason is the attitude of the larger companies which has been to absolutely discourage any and all wildcat wells, and to confine the activity of the drill to those locations which for contractual reason or else on account of short term leases must be drilled.

The Okmulgee district maintains an excellent position in the matter of settled production, and while there were comparatively few new finds in that area last year, the region around the city of Okmulgee is dotted with production in every direction, and the multiplicity of sands which range from a few hundred feet to 3,200 feet keeps some little work constantly going. Just as the year closed, the Akin Oil Co. and Penrod & Thompson of Okmulgee made a discovery in the old Morris Field of Okmulgee County. While this is not sensational, it merely affords another small Wilcox sand pool. The well is No. 1 James NE SE NW Section 22-13-14, and it is good for 700 bbls. daily.

In the matter of important field developments, there were only a few spots worthy of note, Maud, Little River, St. Louis, Mission, and the discovery of Wilcox sand production in the Allen Field of Hughes-Pontotoc-Seminole Counties, and in the last part of the year, the dis-

(Continued on Page 190)

Oklahoma

Daily Average and Monthly Production in 1928

	January (bbls.)	February (bbls.)	March (bbls.)	April (bbls.)	May (bbls.)	June (bbls.)	July (bbls.)	August (bbls.)	September (bbls.)	October (bbls.)	November (bbls.)	December (bbls.)	Total (bbls.)
WASHINGTON COUNTY:													
Daily average	5,733	5,732	5,776	5,802	5,451	5,643	5,791	5,439	5,675	5,599	5,533	5,541	
Month	177,723	166,228	179,056	174,060	168,981	169,290	179,521	168,609	167,250	173,569	165,990	171,771	2,062,048
NOWATA COUNTY:													
Daily average	5,026	5,048	5,109	5,137	5,279	5,283	5,276	5,283	5,322	5,348	5,333	5,336	
Month	155,806	146,392	158,379	154,110	163,649	158,490	163,556	163,773	159,660	165,788	159,990	165,416	1,915,009
ROGERS COUNTY:													
Daily average	1,981	2,012	2,250	2,291	2,226	2,274	* 2 303	2,266	2,248	2,123	2,163	2,167	
Month	61,411	58,348	69,750	68,730	69,006	68,220	71,393	70,246	67,440	65,813	64,890	67,717	802,424
OSAGE AND EASTERN KAY COUNTIES:													
Burbank—													
Daily average	36,970	39,726	42,718	40,496	36,678	32,187	30,211	29,503	29,205	26,321	26,833	24,914	
Month	1,146,070	1,162,054	1,324,258	1,214,880	1,137,018	965,610	936,541	914,593	876,150	815,951	804,990	772,334	12,060,449
Osage, outside Burbank—													
Daily average	26,202	27,575	26,652	28,195	26,373	30,615	26,414	25,999	26,632	23,489	24,898	24,111	
Month	812,262	799,675	826,212	845,850	817,563	918,455	818,834	805,969	798,960	728,159	746,940	747,441	9,666,320
TULSA AND WAGONER COUNTIES:													
Bird Creek, Owasso, etc.—													
Daily average	3,870	4,016	3,993	3,991	3,929	3,881	3,871	3,832	3,795	3,763	3,723	3,701	
Month	119,970	116,464	123,783	119,730	121,799	116,430	120,001	118,792	113,850	116,653	111,690	114,731	1,413,893
Red Fork, Sand Springs, Turkey Mountain, Bruner—													
Daily average	3,247	3,233	3,202	3,187	2,836	2,811	2,214	2,103	1,977	1,911	1,847	1,805	
Month	100,657	93,757	99,262	95,610	87,916	84,330	68,634	65,193	59,310	59,241	55,410	55,955	925,275
Bixby, Leonard and Jenks—													
Daily average	2,382	2,406	2,397	2,263	2,177	2,109	2,014	1,960	1,816	1,793	1,787	1,762	
Month	73,842	69,774	74,307	67,890	67,487	63,270	62,434	60,760	54,480	55,583	53,610	54,622	758,059
Broken Arrow and Coweta—													
Daily average	1,158	1,119	1,349	1,121	1,124	1,116	1,089	1,133	1,097	1,139	1,085	1,067	
Month	35,898	34,771	38,719	33,630	34,844	33,480	33,759	35,123	32,910	35,309	32,550	33,077	414,070
OKMULGEE AND MUSKOGEE COUNTIES:													
Mounds and Beggs—													
Daily average	7,187	7,145	7,104	7,077	7,216	7,222	6,964	6,815	6,616	6,493	6,348	6,113	
Month	222,797	207,205	220,224	212,310	223,696	216,660	215,884	211,265	198,480	201,283	190,440	189,503	2,509,747
Bald Hill and Haskell—													
Daily average	3,229	3,045	3,191	3,393	3,422	3,383	3,355	3,296	3,517	3,364	3,257	3,263	
Month	100,099	88,305	98,921	101,790	106,082	101,490	104,005	102,176	105,510	104,284	97,710	101,153	1,211,525
Morris, Boynton and Cole—													
Daily average	2,507	2,467	2,306	2,896	2,621	2,611	2,492	2,254	2,179	2,214	2,094	2,060	
Month	77,717	71,543	71,486	86,880	81,251	78,330	77,252	69,874	65,370	68,634	62,820	63,860	875,017
Okmulgee—													
Daily average	2,322	2,914	2,814	2,719	2,642	2,583	2,593	2,642	2,636	2,599	2,521	2,504	
Month	71,982	55,506	87,234	81,570	81,902	77,490	80,383	81,902	79,080	80,569	76,630	77,624	930,872
Tiger Flats and Schulter—													
Daily average	1,792	1,761	1,230	1,211	1,201	1,191	1,149	1,090	1,078	1,061	1,056	1,010	
Month	55,552	51,069	38,130	36,330	37,231	35,730	35,619	33,790	32,340	32,891	31,680	31,310	451,672
OKMULGEE, OKFUSKEE, SEMINOLE AND POTTAWATOMIE COUNTIES:													
Seminole area:													
Seminole City—													
Daily average	55,120	57,640	57,087	54,089	52,822	51,036	50,948	48,967	45,766	40,345	42,799	41,638	
Month	1,708,720	1,671,560	1,769,697	1,622,670	1,637,482	1,531,087	1,597,388	1,517,977	1,372,980	1,250,695	1,283,970	1,290,778	18,237,004
Bowlegs—													
Daily average	100,314	91,555	83,570	73,999	65,959	61,121	57,189	53,675	49,037	50,913	48,505	45,316	
Month	3,109,734	2,655,095	2,590,670	2,219,970	2,045,659	1,833,625	1,772,859	1,663,925	1,471,110	1,578,303	1,455,150	1,404,796	23,800,896
Little River—													
Daily average	36,871	34,180	39,429	40,665	44,497	44,063	40,891	82,366	116,998	130,055	108,712	82,110	
Month	1,143,001	991,220	1,222,299	1,219,950	1,379,407	1,321,899	1,267,621	2,553,346	3,509,940	4,031,705	3,261,360	2,545,410	24,447,158
Barlsboro—													
Daily average	124,251	113,790	100,525	93,296	93,130	87,014	78 795	82,699	88,590	80,665	76,507	74,119	
Month	3,851,781	3,299,910	3,116,275	2,798,880	2,887,030	2,610,420	2,442,645	2,563,669	2,667,700	2,500,615	2,295,210	2,297,680	33,321,824
Searight—													
Daily average	19,623	18,600	17,942	16,133	15,459	14,118	12,795	12,747	11,662	11,640	10,557	9,947	
Month	608,313	539,400	556,202	483,990	479,229	423,538	396,645	395,157	349,860	360,840	316,710	308,357	5,218,241
Maud—													
Daily average	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	3,983	16,921	
Month	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	119,490	524,551	644,041
Mission—													
Daily average	.....	.....	.....	.....	.....	.....	.....	.....	.....	351	798	779	
Month	.....	.....	.....	.....	.....	.....	.....	.....	.....	10,881	23,940	24,149	58,970
Total Seminole Field—													
Daily average	336,179	315,765	298,553	278,182	271,879	257,352	240,618	280,454	312,053	313,969	291,861	270,200	
Month	10,421,549	9,157,185	9,256,143	8,345,460	8,428,807	7,720,569	7,459,158	8,694,074	9,361,590	9,733,039	8,755,830	8,395,730	105,728,134
Pearson-St. Louis-Maud—													
Daily average	8,366	11,516	14,512	15,109	16,008	22,680	39,487	66,032	111,087	126,139	129,678	134,112	
Month	259,346	333,964	449,872	453,270	496,248	680,393	1,224,097	2,046,992	3,332,610	3,910,309	3,890,340	4,157,472	21,234,913
Henryetta, Deaner-Lyons, etc.—													
Daily average	7,156	9,501	9,782	8,362	8,195	8,183	7,953	7,242	7,256	7,179	6,990	6,755	
Month	221,836	275,529	303,242	250,860	254,045	245,490	246,543	224,502	217,680	222,549	209,700	209,405	2,881,381
Wewoka—													
Daily average	8,381	9,054	7,737	7,509	6,901	6,494	6,128	5,720	5,485	5,401	5,367	5,118	
Month	259,811	262,566	239,847	225 270	213,931	194,818	189,968	177,320	164,550	167,431	161,010	158,658	2,415,180
Cromwell—													
Daily average	10,139	10,114	10,147	9,799	9,676	9,609	9,321	9,299	7,847	8,735	8,241	8,114	
Month	314,309	293,306	314,557	293,970	299,956	288,276	288,951	288,269	235,410	270,785	247,230	251 534	3,386,553
Papoose-Gilcrease—													
Daily average	5,126	4,015	4,812	4,572	4 427	4,304	4,084	4,090	4,027	4,012	3,593	3,604	
Month	158,906	116,465	149,172	137,160	137,237	129,121	126,604	126,790	120,810	124,372	107,790	111,724	1,546,151
Jarvis-Holm—													
Daily average	947	918	812	732	674	671	641	588	577	549	530	519	
Month	29,357	26,622	25,172	21,960	20,894	20,130	19,871	18,228	17,310	17,019	15,900	16,089	248,552
Wolestka—													
Daily average	810	743	716	698	799	701	683	667	702	675	675	660	
Month	25,110	21,547	22,196	20,940	24,769	21,028	21,173	20,677	21,060	20,925	20,840	20,460	260,225
Wetumka—													
Daily average	45	48	45	44	45	44	44	39	39	39	39	38	
Month	1,395	1,392	1,395	1,320	1,395	1,325	1,364	1,209	1,170	1,209	1,170	1,178	15,522
Yeager—													
Daily average	490	755	557	570	497	461	446	413	399	410	388	376	
Month	15,190	21,895	17,267	17,100	15,407	13,826	13,826	12,803	11,970	12,710	11,640	11,656	175,290
Miscellaneous—													
Daily average	1,096	770	702	751	1,796	1,811	2,244	1,907	2,447	2,065	2,572	2,491	
Month	33,976	22,330	21,762	22,530	55,676	54,326	69,564	59,117	73,410	64,015	77,160	77,221	631,087
CREEK COUNTY:													
Glen Pool, Sapulpa and Kiefer—													
Daily average	6,747	6,455	6,441	6,389	6,316	6,291	6,208	6,066	6,007	6,111	6,097	5,916	
Month	209,157	187,195	199,671	191,670	195,796	188,737	192,448	188,046	180,210	189,441	182,910	183,396	2,288,677
Cushing-Shamrock—													
Daily average	17,631	17,973	17,091	17,444	17,196	17,214	17,615	18,584	18,646	17,685	18,966	17,814	
Month	546,561	521,217	529,821	523,320	533,076	516,420	546,065	576,104	559,380	548,235	568,980	552,234	6,521,413
Bristow, Kellyville and Depew—													
Daily average	18,010	17,761	15,811	15,341	14,916	14,810	14,927	14,912	14,689	14,629	14,430	14,266	
Month	558,310	514,779	490,141	460,230	462,396	444,421	462,737	462,272	440,670	453,499	432,900	442,246	5,624,601
Pickett Prairie and North Bristow—													
Daily average	2,412	2,262	2,330	2,042	1,938	1,902	2,061	1,895	1,834	1,805	1,813	1,817	
Month	74,772	65,598	72,230	61,260	60,078	57,060	63,891	58,745	55,020	55,955	54,390	56,327	735,326
Eastern Bristow—													
Daily average	5,906	5,909	5,611	7,114	7,556	7,413	7,444	7,379	7,717	8,457	8,197	8,016	
Month	183,086	171,361	173,941	213,420	234,236	223,388	230,764	228,749	231,510	262,167	245,910	248,496	2,647,028
PAWNEE COUNTY:													
Cleveland—													
Daily average	2,869	2,830	2,740	2,716	2,640	2,611	2,623	2,531	2,739	2,552	2,471	2,419	
Month	88,439	82,070	84,940	81,480	81,840	78,326	81,313	78,461	82,170	79,112	74,130	74,989	967,770
Keystone—													
Daily average	2,719	2,841	2,888	2,474	2,310	2,322	2,388	1,795	1,755	1,421	1,397	1,401	
Month	84,289	82,389	89,528	74,220	71,610	69,660	74,028	55,645	52,650	44.051	41 910	43,431	783,411
Smaings—													
Daily average	2,986	2,765	2,757	2,613	2,378	2,319	2,307	2,518	2,549	2,984	2,915	2,867	
Month	92,566	80,185	85,467	78,390	73,718	69,571	71,517	78,058	76,470	92,504	87,450	88,877	974,773

(Table Continued of Page 187)

CALIF

Reporti

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TOTAL

71 completions

69 *Bettis* equipped!

The reports are in; records have been checked; figures verified! Only 2 out of the total of 71 wells drilled below 7,000 feet were not Bettis equipped —and those 2 were run without Protectors. One year ago Bettis Protectors were hardly known. Today hundreds of wells are being drilled at less cost, with less "wear and tear" on equipment, by the aid of Bettis Protectors.

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Major Discovery in Kansas in 1928

Pool in Sedgwick County Has the Earmarks of Another Eldorado Field Opened in August. Oil Found in Western Kansas

By J. L. Dwyer
Staff Correspondent, Kansas Fields

In a year marked by several important discoveries, the Kansas fields showed a rather limited activity. The 1,157 wells drilled within the borders of the State during the year represented with one exception the lowest number of wells drilled in any year since 1920. The one exception was 1924, when only 1,125 wells were completed in the State. This was the year which followed the heavy production of California when crude conditions in the Mid-Continent Field were greatly impaired by the effects of oil proration.

The cold figures representing the work of 1928 hardly tell the full story of the activity of Kansas. It is not too emphatic to remark that the oil possibilities of many regions of the State made substantial progress last year, and the work resulted in the discovery of one field which has exceptional potentialities. The Wright Pool seems as if it might be another Eldorado Field.

There were three outstanding accomplishments of the year, the most important of which was the discovery of the Wright Pool in Sedgwick County near the city of Wichita. The second was the finding of a few good showings in wells in the western part of the State, and possibly reflective of this was the leasing activity which resulted in the accumulation of over 100 blocks of leases west of Range 4 east.

The Wright Pool is still in the early history of its development. It is located around Section 12-26-1w, where the discovery well was drilled and there is one well 6 miles northeast of this in Section 16-25-1e, which has laid special importance upon the northeast trend. The pool is 23 miles straight west of the famous old Eldorado Pool of Butler County. It is 6 miles north of the city of Wichita. It was opened by the Gypsy Oil Co., the Marland Production Co. and the Bu-Vi-Bar Petroleum Co. jointly, when a well was drilled upon a block of acreage held by them.

Opened in August

The first well was No. 1 Wright in an odd location which is approximately SE cor. NE SE, Section 12-26-1w. This well tapped a sand at 3,367 feet, and began flowing 50 bbls. an hour. The flow increased at 1 foot in, and the first day's production was 1,800 bbls. The well maintained this rate of flow for some time. It was drilled in August 8, 1928.

Gave Kansas New Life

The production of this well was responsible for bringing the Kansas fields out of a state of lethargy which had been evident for some time. It completely revolutionized the possibilities of the entire section between the new find and the old Eldorado Pool at least, and completely changed the outlook for the central part of Kansas.

Although the well was drilled in August, it was late October before the subsurface possibilities of the region were fully appreciated through a study of the logs of wells which were being drilled in that territory, and then the interest in the region was crystallized.

The thought that the well was a freak had been rather general at the time of its discovery, but when the drilling wells began to run high, the idea was abandoned. Subsequent events proved that the region possesses exceptional possibilities, and the spread of 6 miles between the group of wells around the discovery and the well in Section 15-25-1e, presents

Kansas
Daily Average and Monthly Production in 1928

	January (bbls.)	February (bbls.)	March (bbls.)	April (bbls.)	May (bbls.)	June (bbls.)	July (bbls.)	August (bbls.)	September (bbls.)	October (bbls.)	November (bbls.)	December (bbls.)	Total (bbls.)
MARION COUNTY:													
Florence-Urschell—													
Daily average	553	513	556	547	517	514	521	531	309	490	483	454	
Month	17,143	14,877	17,236	16,410	16,027	15,420	16,151	16,461	9,270	15,190	14,490	14,074	182,746
Peabody—													
Daily average	1,183	1,197	1,154	1,150	1,094	1,097	1,107	1,124	1,065	1,197	1,166	1,196	
Month	36,673	34,713	35,774	34,500	33,914	32,910	34,317	34,844	31,950	37,107	34,980	37,076	418,778
Covert-Sellers—													
Daily average	630	561	511	479	464	461	460	444	444	439	438	431	
Month	19,530	16,269	15,841	14,370	14,384	13,830	14,260	13,764	13,320	13,609	13,140	13,361	173,618
Lost Springs—													
Daily average	865	828	1,677	1,943	2,036	1,817	1,688	1,514	1,420	1,288	1,250	1,202	
Month	26,815	24,012	51,987	58,290	63,116	54,510	52,328	46,934	42,600	39,928	37,500	37,262	535,762
BUTLER COUNTY:													
Elbing—													
Daily average	2,247	2,170	2,160	2,169	2,090	2,081	1,146	2,157	2,085	2,074	2,056	2,029	
Month	69,657	62,930	66,960	65,070	64,790	62,430	66,526	66,867	62,550	64,294	61,680	62,899	776,653
Potwin—													
Daily average	374	373	407	382	351	353	388	510	467	431	432	406	
Month	11,594	10,817	12,617	11,460	10,881	10,590	12,028	15,810	14,010	13,361	12,960	12,586	148,714
Cameron-Robinson—													
Daily average	568	555	539	486	484	481	457	513	470	456	454	509	
Month	17,608	16,095	16,709	14,580	15,004	14,430	14,167	15,903	14,100	14,136	13,620	15,779	182,131
Wilson-Dunkle—													
Daily average	1,551	1,479	1,601	1,574	1,641	1,572	1,498	1,713	1,581	1,656	1,642	1,568	
Month	48,081	42,891	49,631	47,220	50,781	47,160	46,438	53,103	47,430	51,336	49,260	48,608	581,939
Towanda—													
Daily average	2,369	2,494	2,459	2,379	2,343	2,339	2,341	2,321	2,269	2,239	2,302	2,115	
Month	73,439	72,326	76,229	71,370	72,633	70,170	69,471	71,951	68,070	69,409	69,060	65,565	849,093
Fox-Bush—													
Daily average	1,142	1,053	1,080	1,018	957	978	971	936	939	918	913	875	
Month	35,402	30,537	33,480	30,540	29,667	29,340	30,101	29,016	28,170	28,458	27,390	27,125	359,226
Nuttle-Koogler—													
Daily average	1,776	1,653	1,623	1,547	1,566	1,546	1,501	1,512	1,496	1,526	1,518	1,506	
Month	55,056	47,937	50,313	46,410	48,546	46,380	46,531	46,872	44,880	47,306	45,540	46,686	572,411
Eldorado—													
Daily average	7,142	6,993	7,420	7,165	7,184	7,166	6,904	7,351	7,246	7,201	7,163	6,947	
Month	221,402	202,797	230,020	214,950	222,704	214,980	214,024	227,881	217,380	223,231	214,890	215,357	2,619,616
Smock—													
Daily average	182	187	194	189	182	183	171	164	175	180	181	174	
Month	5,642	5,423	6,014	5,670	5,642	5,490	5,301	5,084	5,250	5,580	5,430	5,394	65,910
Leon-Weaver—													
Daily average	3,295	3,397	3,419	3,754	3,634	3,601	3,678	5,915	6,959	7,254	7,272	6,523	
Month	102,145	98,513	105,989	112,620	112,654	108,030	114,018	183,365	208,770	224,874	218,160	202,213	1,791,351
North Augusta—													
Daily average	1,043	1,108	1,111	1,059	1,029	1,020	1,001	940	915	905	901	901	
Month	32,333	32,132	34,441	31,770	31,899	30,600	31,031	29,140	27,450	28,055	27,030	27,931	363,813
South Augusta—													
Daily average	1,524	1,413	1,551	1,455	1,492	1,453	1,329	1,365	1,300	1,295	1,280	1,141	
Month	47,244	40,977	48,081	43,650	46,252	43,590	41,199	42,315	39,000	40,145	38,400	35,371	506,224
Sluss—													
Daily average	296	300	294	292	270	269	264	263	277	255	247	265	
Month	9,176	8,700	9,114	8,760	8,370	7,070	8,184	8,153	8,310	7,905	7,410	8,215	100,367
Douglas—													
Daily average	129	130	133	124	124	126	121	121	126	120	119	119	
Month	3,999	3,770	4,123	3,720	3,844	3,780	3,751	3,751	3,780	3,720	3,570	3,689	45,097
Keighly—													
Daily average	1,517	1,438	1,266	1,190	1,104	1,092	1,056	1,038	1,022	985	976	870	
Month	47,027	41,702	39,246	35,700	34,224	32,760	32,736	32,178	30,660	30,535	29,280	26,970	413,818
Benton—													
Daily average	27	28	26	26	23	24	22	21	21	18	18	18	
Month	837	812	806	780	713	720	682	651	630	558	540	558	8,787
Blankenship—													
Daily average	926	929	908	898	863	859	841	743	786	773	762	749	
Month	28,706	26,941	28,148	26,940	26,753	25,770	26,071	23,033	23,580	23,963	22,860	23,219	306,984
GREENWOOD & WOODSON COUNTIES:													
Sallyards—													
Daily average	1,210	1,276	1,277	1,372	1,378	1,344	1,371	1,507	1,390	1,463	1,466	1,447	
Month	37,510	37,004	39,587	41,160	42,718	40,320	42,501	46,717	41,700	45,353	43,980	44,857	503,407
Teeter-Pixley-Scott—													
Daily average	7,531	7,465	7,297	6,949	6,750	6,690	6,447	6,418	6,123	5,867	5,816	5,757	
Month	233,461	216,485	226,207	208,470	209,250	200,700	199,857	198,958	183,690	181,877	174,480	178,467	2,411,902
Virgil—													
Daily average	6,962	7,538	7,931	8,617	8,084	8,003	7,780	7,213	7,788	7,248	7,211	6,846	
Month	215,822	218,602	245,861	258,510	250,604	240,240	241,180	223,603	233,640	224,688	216,330	212,226	2,781,506
Thrall-Burkett—													
Daily average	2,092	2,048	2,075	1,990	1,964	1,947	1,904	1,751	1,710	1,713	1,717	1,667	
Month	64,852	59,392	64,325	59,700	60,884	58,410	59,024	54,281	51,300	53,103	51,510	51,677	688,458
Seeley—													
Daily average	7,891	7,725	7,522	7,407	7,185	7,204	7,143	6,550	6,242	6,204	6,196	5,709	
Month	244,621	224,025	233,182	222,210	222,735	216,120	221,433	203,050	187,260	192,324	185,880	176,979	2,529,819
Polhamus—													
Daily average	1,102	1,135	1,085	1,002	947	942	921	925	1,002	969	967	955	
Month	34,162	32,915	33,635	30,060	29,357	28,260	28,551	28,675	30,060	30,039	29,010	29,605	384,329
Miscellaneous—													
Daily average	1,975	1,787	1,830	2,030	1,962	1,949	1,806	1,576	1,504	1,170	740	1,127	
Month	61,225	51,823	56,730	60,900	60,822	58,470	55,986	48,856	45,120	36,270	22,200	34,937	636,339
COWLEY COUNTY:													
Rainbow Bend—													
Daily average	1,595	1,528	1,514	1,462	1,386	1,372	1,277	1,173	1,122	1,054	997	999	
Month	49,445	44,312	46,934	43,860	42,966	41,160	39,587	36,363	33,660	32,674	29,910	30,969	471,840
Slick—													
Daily average	838	704	651	642	621	619	593	564	552	533	531	567	
Month	25,978	20,416	20,181	19,260	19,251	18,570	18,383	17,484	16,560	16,523	15,930	17,577	226,313
Graham—													
Daily average	531	528	526	500	499	491	481	448	433	413	407	401	
Month	16,461	15,312	16,306	15,000	15,469	14,730	14,911	13,888	12,990	12,803	12,210	12,431	172,511

(Table Continued on Page 129)

a sector of the State from which much may be expected.

Located on Large Block

It was rather fortunate for the industry that the discovery well was located upon a block of about 2,000 acres of leases. By this occurrence the owners were amply protected from the damage of property drainage and the annoyance of offset drilling. The well was almost in the center of the block. By this fact a big drilling campaign was eliminated, and no damage resulted to the crude price structure as a result of the find.

At the close of 1928 there had been five wells drilled in the Wright Pool, and they are credited in the production table with 378,851 bbls. up to the close of the year.

The second well in the Wright Pool to be completed was an offset to the discovery well. It was No. 1 Lyons approximately SW cor. NW SW, Section 2-26-1e, and it found the sand 3,352-3,356 feet and flowed 863 bbls. the first 12 hours. At the close of the year, there were four wells (all offsets) drilled around the discovery well, while the Marland Production Co.'s No. 1 Goodrich well, SW cor. NE SW, Section 15-26-1e, 6 miles northeast of the other four wells found the sand somewhat higher and flowed an amount of oil estimated at 4,000 bbls. the first day. Owing to inadequate pipe line facilities, the well was shut in, and in the early days of its production had a varied experience. The well made some slight amount of water when it was opened up, and it is believed now that it is a good well, and that the appearance of the water had slight significance affecting the possibilities of the territory.

The five wells in the Wright Pool have been responsible for the changed attitude of oil men toward the Kansas region, and the exceptional interest which is now manifested. Along this line it is significant to remark that there are 40 scouts in the State representing oil companies, while a year ago there were 19.

Discovery in McPherson County

There are several other sections of the State aside from the Wright Pool which were interesting during 1928, although none of them showed the production of that pool. The old McPherson County gas region around Township 18-2w had some interesting developments, the most important of which, perhaps, was the Mid-Kansas Oil & Gas Co.'s No. 1 Larsen, NE cor. SW Section 31-18-2w. This well found the chat 2,952-77 feet and had 2,500,000 feet of gas and a spray of oil. The spray increased and the well made 16 bbls. an hour the first three or four hours. The low gravity of the oil, and the fact that it was badly cut failed to give any appreciable interest to the region. The oil had a gravity of 22 degrees A.P.I. and was cut 10 per cent by water and b.s.

The Gorham region of Russell County had some development work during the year. This is located around Township 13-15w and several wells were drilled which found oil production in the conglomerate formation at 3,300 feet. There was some hope that this would be the forerunner of another Russell Pool, but the hope died when the productive region was confined to four wells of small yield, and much water. The development was disappointing. It was 7 miles southwest of the Russell Pool.

Lost Springs a Disappointment

The hope that a north extension of the Lost Springs Pool of Marion County would open new regions to the drill and result in uncovering new production failed. The first well of importance in the north extension of Lost Springs was that of Givens & Hershey on the north edge of the city limits. The Lost Springs Pool is around Section 21-17-4e. Givens & Hershey's first well produced 500 bbls. daily, and started the excitement. The offsets were disappointing in output, and the boom died.

Important Events in West

In far western Kansas, there were two important events, the discovery of a good gas well, which had an oil showing, in Rush County, and the finding of an oil well in Ellis County. In Rush County, Danciger, Valerius & Cheney's No. 1 Schuerman, C NW, Section 27-17-17w, found what was thought to be the Russell horizon at 3,341 feet with a show of oil. More oil was found at 3,352 feet, and gas was struck in a formation from 3,575-3,576 feet. There was 3,500,000 feet of gas in the lower horizon, and the operation was completed as a gas well. This find was 32 miles south and slightly west of the Russell Pool and is located in a territory where M. M. Valerius, geologist, has done much work. It has been considered possible that this gas well may be the forerunner of an oil field.

Good Promise in Ellis County

In Ellis County, what at first was considered a 1,000-bbl. well decreased in output, but the finding of a commercial well is of some importance. The Phillips Petroleum Co.'s No. 1 Schuttz, C NE, Section 5-12-17w, found what is thought to be the Gorham sand 3,572-75 feet, and the hole filled up 3,000 feet with oil. The well was prepared for the swab and the first swabbing test made 12 bbls. an hour for several hours. The well settled down in output and is now making 250 bbls. daily.

Although no production has resulted, the territory along the line between Rooks and Osborne Counties has been the scene of exceptional activity during the past year. There have been a great number of blocks taken in this territory and several drilling operations have been recorded. None of the tests have found

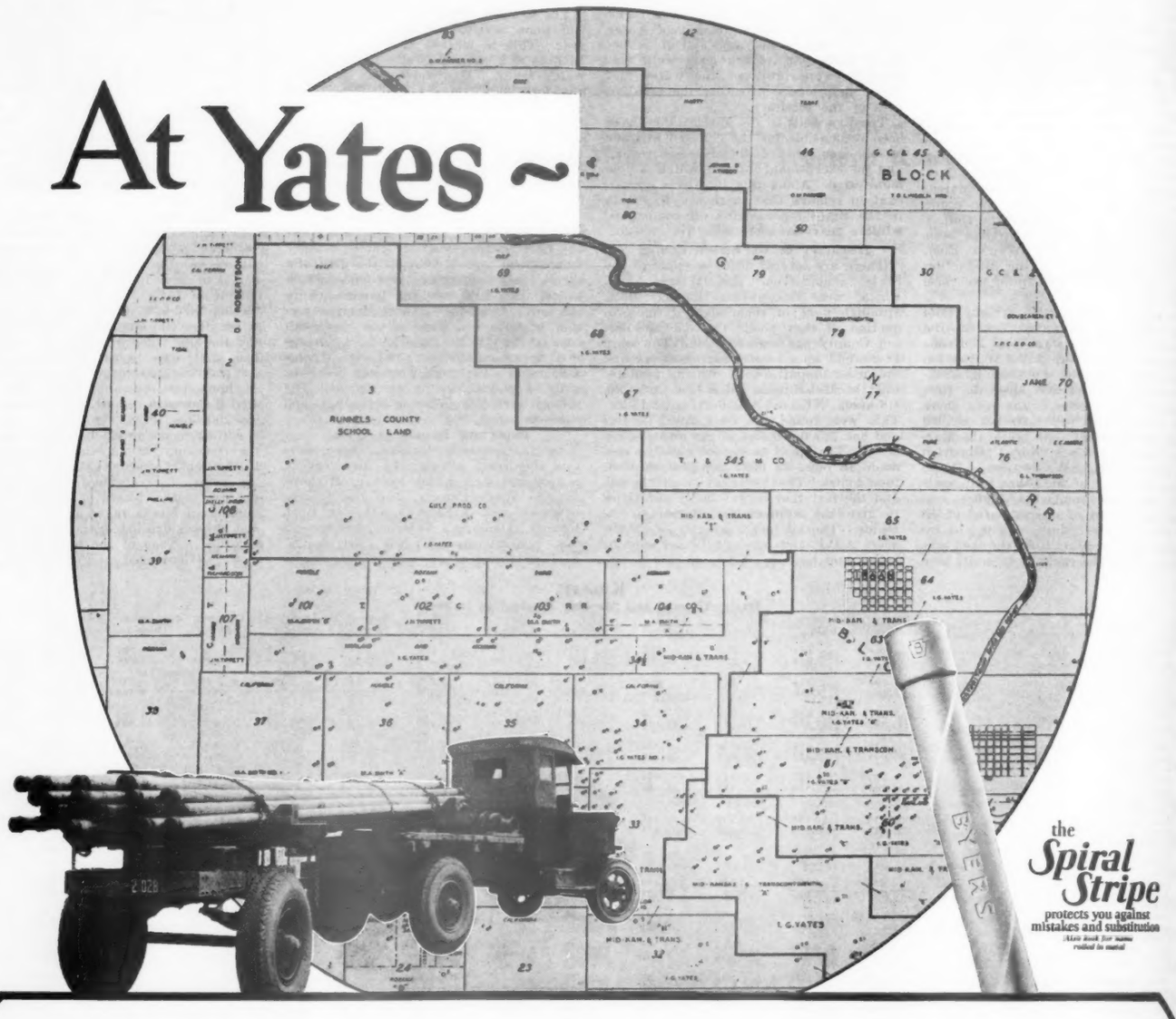
(Continued on Page 288)

Kansas

Daily Average and Monthly Production in 1928

	January (bbls.)	February (bbls.)	March (bbls.)	April (bbls.)	May (bbls.)	June (bbls.)	July (bbls.)	August (bbls.)	September (bbls.)	October (bbls.)	November (bbls.)	December (bbls.)	Total (bbls.)
Rock—													
Daily average	204	194	203	179	197	188	184	175	169	161	161	149	
Month	6,324	5,626	6,293	5,370	6,107	5,640	5,704	5,425	5,070	4,991	4,830	4,619	65,999
Clark—													
Daily average	205	174	167	169	180	174	176	161	157	150	149	147	
Month	6,355	5,046	5,177	5,070	5,580	5,220	5,456	4,991	4,710	4,650	4,470	4,557	61,282
Eastman—													
Daily average	582	602	601	570	548	551	519	497	486	472	463	453	
Month	18,042	17,458	18,631	17,100	16,988	16,530	16,089	15,407	14,580	14,632	13,890	14,043	193,390
Winfield-New Salem—													
Daily average	2,828	2,491	2,576	2,337	2,303	2,310	2,133	2,060	1,939	1,831	1,799	1,762	
Month	87,668	72,239	79,856	70,110	71,593	69,300	66,123	63,860	58,170	56,761	53,970	54,622	804,672
Miscellaneous—													
Daily average	731	822	884	896	965	841	810	734	711	703	700	671	
Month	22,661	23,838	27,404	26,880	30,039	25,230	25,110	22,754	21,330	21,793	21,000	20,801	288,840
OTHER COUNTIES:													
SUMNER—													
Daily average	22,423	22,789	23,730	29,149	25,137	24,415	21,370	19,349	18,832	17,283	16,462	14,616	
Month	695,113	660,381	735,630	874,470	779,247	732,450	662,470	599,819	564,960	535,773	493,860	453,065	7,787,738
SEDGWICK—													
Daily average	....	....	....	....	....	....	....	....	1,680	1,486	3,714	5,515	
Month	..	....	....	....	....	....	....	....	50,400	46,066	111,420	170,965	378,851
RICE—													
Daily average	1,638	1,503	1,592	1,293	1,287	1,276	1,105	1,146	1,086	967	962	783	
Month	50,778	43,587	49,383	38,790	39,897	38,280	34,255	35,526	32,580	29,977	28,860	24,273	446,186
ROOKS—													
Daily average	....	....	49	40	49	47	....	42	45	40	32	31	
Month	....	....	1,519	1,200	1,519	1,410	5,648	1,302	1,350	1,240	960	961	11,461
RUSSELL—													
Daily average	2,332	2,774	3,004	3,018	3,595	3,491	4,135	4,466	4,080	4,080	4,116	3,614	
Month	72,292	80,446	93,124	90,540	111,445	104,730	128,185	138,446	122,400	126,480	123,480	112,034	1,303,602
RENO—													
Daily average	10	42	18	21	22	20	25	45	41	37	35	35	
Month	316	1,218	558	630	682	600	775	1,395	1,230	1,147	1,050	1,085	10,686
HARVEY—													
Daily average	29	26	40	29	40	38	37	37	36	31	30	30	
Month	899	754	1,240	870	1,240	1,140	1,147	1,147	1,080	961	900	930	12,308
COFFEY—													
Daily average	285	288	287	282	285	282	260	270	265	266	267	237	
Month	8,835	8,352	8,897	8,460	8,835	8,460	8,060	8,370	7,950	8,246	8,010	7,347	99,822
CHAUTAUQUA—													
Daily average	2,238	2,135	2,185	2,166	2,266	2,179	2,297	2,405	2,204	2,275	2,210	2,305	
Month	69,378	61,915	67,735	64,980	70,246	65,370	71,207	74,555	66,120	70,525	66,300	71,455	819,786
ELK—													
Daily average	1,834	1,890	2,020	2,017	2,075	2,063	1,938	1,855	2,337	2,276	2,267	2,256	
Month	56,854	54,810	62,620	60,510	64,325	61,890	60,078	57,505	70,110	70,556	68,010	69,936	757,204
WILSON—													
Daily average	303	108	197	196	190	197	189	192	191	189	189	187	
Month	9,393	5,742	6,107	5,880	5,890	5,910	5,859	5,952	5,730	5,859	5,670	5,797	73,789
MONTGOMERY—													
Daily average	1,412	1,577	1,419	1,401	1,480	1,472	1,461	1,502	1,512	1,482	1,467	1,449	
Month	43,772	45,733	43,989	42,030	45,880	44,160	45,291	46,562	45,360	45,942	44,010	44,919	537,648
ALLEN—													
Daily average	552	540	557	557	612	602	619	609	594	650	653	649	
Month	17,112	15,660	17,267	16,710	18,972	18,060	19,189	18,879	17,820	20,150	19,590	20,119	219,528
NEOSHO—													
Daily average	495	503	501	502	508	501	508	501	503	516	514	511	
Month	15,345	14,587	15,531	15,060	15,748	15,030	15,748	15,531	15,090	15,996	15,420	15,841	184,927
LYON—													
Daily average	1,314	1,167	1,174	1,171	1,112	1,093	1,007	1,002	1,005	830	827	820	
Month	40,734	33,843	36,394	35,130	34,472	32,790	31,217	31,062	30,150	25,730	24,810	25,420	381,752
MIAMI—													
Daily average	2,903	2,429	2,410	2,377	1,961	1,868	1,819	1,729	1,628	1,388	1,390	1,373	
Month	89,993	70,441	74,710	71,310	60,791	56,040	56,389	53,599	48,840	43,028	41,700	42,563	709,404
FRANKLIN—													
Daily average	390	423	436	435	434	432	447	429	423	419	418	418	
Month	12,090	12,267	13,516	13,050	13,454	12,960	13,857	13,299	12,690	12,989	12,540	12,958	155,670
DOUGLAS—													
Daily average	21	14	19	19	21	19	21	19	19	19	19	18	
Month	651	406	589	570	651	570	651	589	570	589	570	558	6,964
BOURBON—													
Daily average	9	8	16	16	13	15	13	18	20	14	15	17	
Month	279	232	496	480	403	450	402	558	600	434	450	527	5,312
LINN—													
Daily average	200	180	184	183	200	188	221	227	212	214	211	203	
Month	6,200	5,220	5,704	5,490	6,200	5,640	6,851	7,037	6,360	6,634	6,330	6,293	73,959
ANDERSON—													
Daily average	1,978	1,904	1,829	1,823	1,879	1,836	1,902	1,706	1,711	1,702	1,706	1,696	
Month	61,318	55,216	56,699	54,690	58,249	55,080	58,962	52,886	51,330	52,762	51,180	52,576	660,948
LABETTE—													
Daily average	25	25	22	22	25	23	25	25	24	21	20	22	
Month	775	725	682	660	775	690	775	775	720	651	600	682	8,510
CHASE—													
Daily average	51	25	19	19	25	20	19	26	25	25	25	21	
Month	1,581	725	589	570	775	600	589	806	750	775	750	651	9,161
WOODSON—													
Daily average	1,017	947	1,064	1,058	1,002	996	980	970	402	799	779	940	
Month	31,527	27,463	32,984	31,740	31,062	29,880	30,380	30,070	12,060	24,769	23,370	29,140	335,605
Daily average	107,075	106,203	109,001	113,742	108,639	106,735	102,368	101,518	101,575	98,660	99,260	96,400	104,237
Total 1928	3,319,325	3,079,887	3,379,031	3,412,260	3,367,809	3,202,050	3,171,548	3,147,058	3,047,250	3,058,460	2,977,800	2,988,400	38,150,878
Total 1927	3,769,879	3,352,076	3,675,143	3,516,930	3,704,314	3,437,580	3,454,082	3,442,240	3,341,340	3,509,169	3,313,650	3,427,174	41,943,577
Total 1926	3,250,536	2,877,812	3,334,887	3,330,120	3,516,640	3,366,450	3,582,267	3,681,436	3,450,060	3,714,637	3,593,490	3,654,156	41,346,511
Total 1925	2,520,858	2,466,660	2,824,534	2,971,110	3,493,266	3,175,440	3,686,675	3,558,087	3,393,270	3,477,146	3,221,760	3,308,816	38,151,622
Total 1924	2,223,878	2,112,853	2,206,425	2,965,090	2,486,696	2,473,320	2,671,053	2,717,398	2,638,900	2,768,455	2,597,460	2,537,443	29,671,551
Total 1923	2,638,875	2,360,288	2,588,531	2,624,430	2,852,217	2,797,830	2,448,566	2,316,320	2,234,730	2,336,346	2,268,840	2,345,150	29,812,125

At Yates ~



EXTRACTS FROM FIELD REPORTS

"A check-up on a very large user of Byers Tubing shows 'No trouble with any of the wrought iron tubing, either galvanized or black,' which they have in service in this area."

"In a well where the oil carried a sulphur content, other make of tubing failed in 203 days. It was replaced with wrought iron tubing. At the end of 426 days, the time of the report, the material was still in service."

"In another well in this field, ordinary tubing failed in 170 days. Wrought iron tubing was installed and 466 days later reported still in service. This is a pumping well."

"A record of two wells close to each other is interesting. One with ordinary 3" tubing was eaten up in 134 days. The other with 3" wrought iron, showed failure only after 318 days. Both were air wells making water."

The Yates Pool in Pecos County is one of the most prolific areas in West Texas, having approximately 14,000 acres of practically proven territory for flowing oil production.

Many of the field superintendents in charge of this phenomenal pool, given proper facilities for opening up of the wells, are looking forward to a steady production and are depending upon the ability of genuine wrought iron tubing and casing to avoid shutdowns and interrupted operations.

Because of the great cost of replacing tubing at frequent intervals and the loss of production due to shutting down a well for replacement, most operators have found it economical to use Byers Galvanized Tubing because of the lasting qualities of galvanized wrought iron. Numerous tests have proven that galvanized wrought iron will give a service life many times that of ordinary tubing.

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Established 1864 Pittsburgh, Pa.

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BYERS Galvanized TUBING

GENUINE WROUGHT IRON

Gasoline Featured Market in 1928

Low Prices Early in Year Offset by Exceptionally High Prices Later. All Fuel Oils Generally Weak

By C. O. Willson

Nineteen hundred twenty-eight can properly be called a gasoline year so far as refinery operations are concerned.

The year started with the lowest tank car prices at refineries in several years. This was a development of a gradual reduction throughout 1927 which continued the first few weeks of 1928 resulting in prices which in some refining areas were lower than during any period since gasoline became the principal product secured from crude oil.

As an illustration the principal domestic grade of gasoline (58-60, 437 U. S. Motor) sold as low as 5½ cents per gallon in North Texas and Oklahoma. The same grade sold in Pennsylvania for 7½ cents and in the New York domestic and export market the product sold as low as 8¼ cents in bulk.

These extremely low prices brought about an operating situation at refineries which proved to be beneficial to the operators later in the year. Refiners with a year of unsatisfactory operation behind them curtailed their crude runs to stills throughout the winter of 1927-1928. As a result there was not the usual winter accumulation of gasoline stocks.

Prices began to improve early in the spring of 1928 and showed gradual improvement until mid-summer. At that time with an increase in domestic consumption over the previous year of approximately 10 per cent and a 20 per cent increase in exports, an actual shortage in gasoline loomed for a few weeks. Refinery prices jumped so that early in August the 58-60 U. S. Motor grade was bringing a minimum of 9¾ cents in the Mid-Continent area, 12 cents in Pennsylvania and 11¾ cents along the East Coast.

These prices were maintained with only minor reductions during the fall months. Refiners continued to maintain their summer rate of operations and when a seasonal decline in domestic consumption developed in December, too much gasoline brought a price slump, a development which continued during the early weeks of 1929.

The high gasoline prices of the last half of 1928 gave many refinery operators their first profitable period in several years. Crude oil prices were advanced in both the Mid-Continent and California, the largest increase coming in the highest gravity crude oils.

These advances in crude oil, however, were not sufficient to materially affect the refiners' profits. A few plants which had been shut down for one or more years resumed operations and the profitable period also resulted in many enlargements at refineries already operating. In Pennsylvania, as will be explained later, a local situation developed in crude oils and the upward trend in prices continued until the year ended.

The extremely low prices for gasoline early in the year partially offset the high prices later in the year so the average prices for the year are not as high as some might guess. The accompanying table, however, shows that the average prices on gasoline at refineries were exceptionally high when compared to crude oil and most of the other refined products. In the Mid-Continent for instance the average price on 36 gravity crude oil for 1928 was $1.31 per barrel. The average low price on 58-60 U. S. Motor gasoline in Oklahoma for the year was 7.95 cents per gallon. This compares with an average crude oil price of $1.38 per barrel in 1927 and an average U. S. Motor gasoline price of 6.67 cents per gallon.

The situation in California was similar to that in the Mid-Continent so far as gasoline was concerned although the range between the high and low prices for the year was not so great. Refiners were able to maintain an average price of 9.19 cents per gallon for the U. S. Motor grade, an average increase of .46 cent per gallon over the previous year. Export gasoline prices, however, were slightly lower than during the previous year.

Natural Gasolines

To a large extent what has been said concerning the refinery gasoline market also would apply to natural gasolines east of and including the Rocky Mountains. The relationship between refinery gasoline and natural gasoline in a given area generally is very close and this situation obtained in 1928. Natural gasolines during 1927 and the early part of 1928 were as weak as refinery gasoline. In the Mid-Continent naturals did not recover as quickly as the regular grades of refinery gasoline. As late as April 1 Grade AA natural gasoline was selling at 4⅛ cents in North Texas and Oklahoma and Grade C was available at 3¼ cents.

When the market on natural gasoline turned prices recovered rapidly. A peak of 10¾ cents for all grades was reached in the Mid-Continent and latter part of August at which time the accumulated stocks were depleted and a strong demand from refiners furnished a ready outlet for all of the current output. The market with minor fluctuations continued strong until early December when it followed the refinery gasolines in a general price decline.

For the year the natural gasoline manufacturers in the Mid-Continent were able to maintain a price in line with the U. S. Motor refinery grade. The Grade AA in Oklahoma averaged 7.34 cents in 1928. The average for the last half of the year was 9.27 cents and the first half 5.75 cents.

California Natural Gasoline

The trend in the natural gasoline market was contrary to that east of the West Coast. The average price for the 75-85, 375-390 grade in California the first half of 1928 was 7.8 cents per gallon and 6.72 cents for the last half. The production of natural gasoline in California materially increased during the last half of the year and this fact was responsible for the lower prices. Prices recovered after a slump in July and August and at the end of the year the product was considered in a strong position despite a weak refinery market.

Kerosene

Although not as spectacular as gasoline, kerosene prices during 1928 were maintained at exceptionally high levels. With little change in domestic consumption of 1927 and 1928, exports during the latter year materially increased and absorbed approximately one-third of the domestic production.

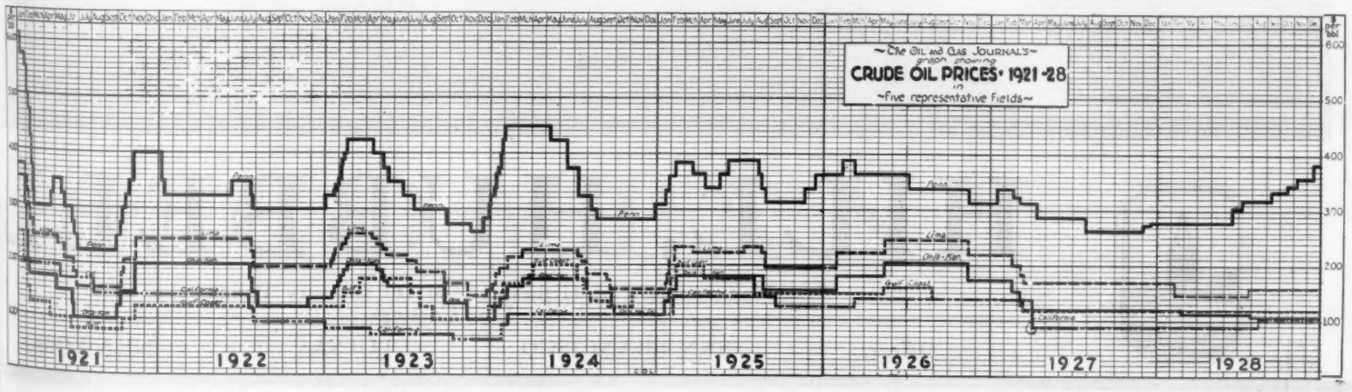
Another favorable price factor in the kerosene situation lies in the fact that

AVERAGE PRICES CRUDE OIL AND REFINED PRODUCTS

	1928	1927	1926	1925	1924	1923
OKLAHOMA—CRUDE OIL						
*36 A.P.I. gravity, per bbl.	$1.31	$1.38	$2.13	$1.87	$1.63	$1.56
OKLAHOMA—REFINED PRODUCTS						
58-60 U. S. Motor gasoline, per gal.	.0795	.0667	.1031	.1055	.0896	.0978
Grade A, 72-79.9, 375 e.p., rec. 90%, per gal.	.0744	.0585	.0946	.1202	.0866	.0913
41-43, water white kerosene, per gal.	.0517	.0461	.0727	.0445	.0449	.04
24-26 fuel oil, per bbl.	.7694	.9792	1.3072	1.0908	.954	.9511
32-36 gas oil, per gal.	.0247	.0299	.0419	.0368	.0291	.0266
200 vis., 3 color, 23-28 cold test neutral oil, per gal.	.0947	.1032	.1072	.1139	.1308	.1317
124-126 wax, per lb.	.0394	.0294	.0471	.0516	.0446	.0254
PENNSYLVANIA—CRUDE OIL						
	1928	1927	1926	1925	1924	1923
Crude oil in National Transit Lines, per bbl.	$2.98	$2.87	$3.51	$3.50	$3.60	$3.33
PENNSYLVANIA—REFINED PRODUCTS						
58-60 gravity, per gal.	.0982	.09	.1273	.1348	.1224	.1352
43 kerosene, per gal.	.0635	.0646	.0885	.0656	.0671	.0652
30-34 fuel oil, per gal.	.0449	.0477	.0591	.053	.0527	.054
Pennsylvania bright stock, per gal.	.3186	.3326	.3954	.3824	.3655	.3337
CALIFORNIA—CRUDE OIL						
	1928	1927	1926	1925	1924	1923
25 A.P.I. gravity, Long Beach, per bbl.	$ .96	$1.00	$1.37	$1.35	$1.06	$ .74
CALIFORNIA—REFINED PRODUCTS						
58-60 U. S. Motor gasoline, per gal.	.0919	.0873	.1134	Average prices on refined products for 1925, 1924 and 1923 on comparable basis not available.		
75-85, 375-390 e.p., natural gasoline, per gal.	.0726	.093	.1465			
38-40 kerosene, per gal.	.0611	.07	.0745			
15-20 fuel oil at tidewater, per bbl.	.8692	.9221	.9813			

*Based on posted price for Oklahoma, Kansas and North Texas.

Note: Average prices on refined products are based on low quotations as published weekly in The Oil and Gas Journal.



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Every year Biturine Enamel extends its first line trenches farther into the territory once held undisputed by corrosive elements. A constantly increasing number of users are being won to this protective method that adds years of life to pipe lines by rendering them absolutely immune to soil acids, moisture, alkalis and electrolysis.

Because no other coating can approach its perfection in resistance and tensile strength, Biturine Enamel reigns supreme as first choice of Oil and Gas Industry pipe line executives who have weighed the facts in solving their corrosion problems. Every test of actual service in the ground, and accelerated tests under every conceivable condition made during the past 25 years, have served to increase the evidence overwhelmingly in favor of Biturine Enamel.

Biturine Enamel is a scientific blend of native lake asphalt with other ingredients that insures longer life and better service against all corrosive action. Permanent protection is the result. Biturine Enamel will not crack, chip, peel off at low temperatures, nor sag and run off the pipe at high temperatures as compared with straight coal tar or straight petroleum asphalt coatings. Biturine Enamel costs less per mile, per year.

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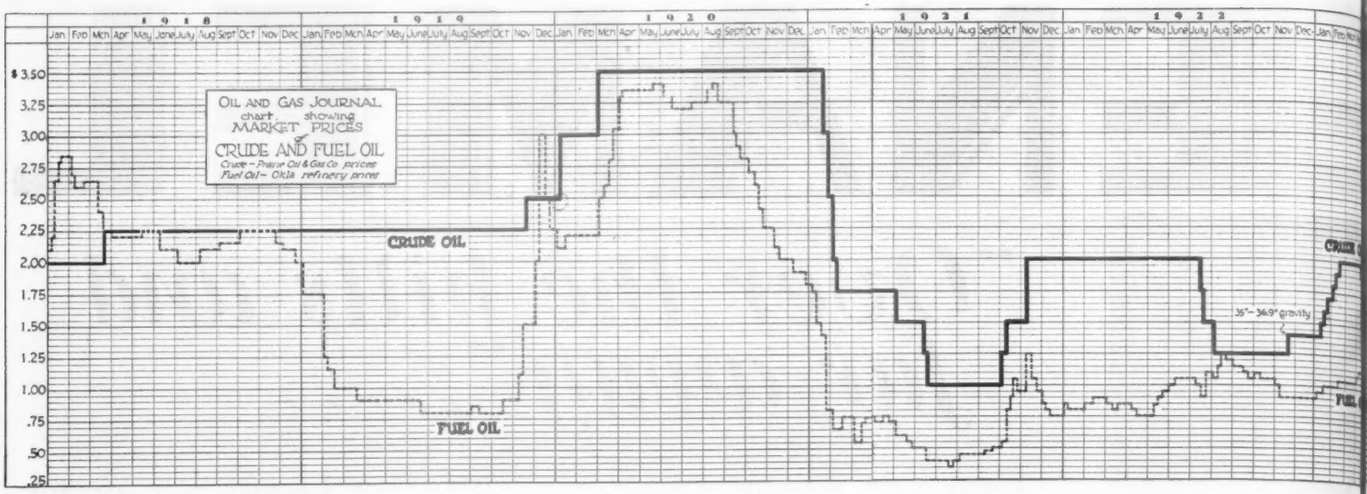


	Price	
	Crude 36° gr.	Fuel oil 18-22° gr.
1919—		
January 2	....	$1.75
February 3	....	1.25
February 9	....	1.15
February 20	....	1.00
March 21	....	.90
June 21	....	.80
September 2	....	.85
September 12	....	.80
October 17	....	.90
November 8	....	1.10
November 15	....	1.50
November 20	$2.50	....
December 2	....	2.00
December 8	....	2.00
December 16	....	2.50
December 21	....	2.25
1920—		
January 2	....	2.10
January 6	3.00	....
January 16	....	2.20
March 1	3.50	....
March 3	....	2.50
March 12	....	2.60
March 18	....	2.80
March 26	....	3.05
April 3	....	3.30
April 6	....	3.35
May 25	....	3.40
June 7	....	3.30
June 20	....	3.20
July 14	....	3.25
August 6	....	3.25
August 14	....	3.40
August 27	....	3.25
September 13	....	3.00
September 16	....	2.90
September 27	....	2.80
October 8	....	2.70
October 15	....	2.60
October 18	....	2.40
October 28	....	2.25
November 12	....	2.10
November 18	....	2.00
December 10	....	1.90
December 29	....	1.80
1921—		
January 6	....	1.75
January 12	....	1.50
January 20	....	1.40
January 24	3.00	....
January 28	....	.80
January 31	2.50	....
February 4	2.00	.65
February 9	1.75	....
February 19	....	.75
March 4	....	.55
March 14	....	.70
March 21	....	.75
April 3	....	.70
April 16	....	.75
April 20	....	.70
May 2	1.50	....
May 3	....	.60
May 21	....	.55
May 28	....	.50
June 13	1.25	....
June 16	1.00	.40
June 20	....	.35
July 26	....	.40
August 6	....	.45
September 10	....	.47½
September 21	....	.50
October 1	1.25	....
October 6	....	.55
October 7	1.50	....
October 10	....	.80
October 15	....	.90
October 19	....	1.05
October 24	....	.95
November 7	2.00	....
November 8	....	1.25
November 16	....	1.05
November 20	....	.95
December 1	....	.85
December 5	....	.80
December 12	....	.75
1922—		
January 1	....	.85
January 5	....	.80
February 1	....	.85
February 14	....	.90
March 2	....	.85
March 10	....	.80
March 16	....	.85
April 9	....	.80
April 15	....	.70
May 9	....	.85
May 15	....	.90
May 20	....	.95
June 1	....	1.00
June 9	....	1.05
July 8	....	1.00
July 15	1.75	.90
July 18	....	1.50
July 22	....	1.10
August 2	1.25	1.05
August 7	....	1.15
August 14	....	1.25
August 25	....	1.20
September 1	....	1.15
September 15	....	1.10
September 24	....	1.05
October 1	....	1.10
October 10	....	1.05
November 1	....	1.00
November 8	....	.90
November 22 (35-36.9°)	1.40	....
1923—		
January 5	....	.95
January 13	1.50	....
January 17	1.60	1.00
January 27	1.70	....
February 2	1.80	....
February 10	1.90	....
February 15	....	1.05
February 17	2.00	....
April 8	....	1.10
April 14	....	1.15
April 23	1.80	....
May 2	1.80	....
May 5	1.70	1.05
May 12	1.60	....
June 2	....	1.00
June 19	....	.90
June 24	....	.90
July 15	....	.85
July 21	....	.90
July 26	....	.92½
August 1	....	.90
August 6	....	.92½
August 12	....	.90
August 27	....	.90
September 9	....	.80
September 19 (33-39.9°)	1.30	....
October 5	....	.75
November 8	1.00	....
November 10	....	.75
December 1	....	.70
December 7	....	.70
December 14	....	.80
December 21	....	.85
December 29	....	.90
1924—		
January 8	....	.95
January 9 (33-35.9°)	1.25	....
January 15	....	1.10
January 19	1.40	....
January 22	....	1.15
February 2	1.60	....
February 5	....	1.20
February 12	....	1.17½
February 19	....	1.10
March 4	....	1.07½
March 8	1.75	....
March 11	....	1.05
April 1	....	1.02½
April 15	....	1.00
April 22	....	.95
April 29	....	.97½
May 6	....	.85
May 20	....	.85½
May 27	....	.77½
June 3	....	.75
June 10	....	.72½
June 17	....	.75
June 24	....	.90
July 1	....	.77½
July 17 (33° and above)	1.75	....
July 22	....	.75
July 28	1.60	....
August 5	....	.72½
August 12	....	.75
August 19	....	.80
August 26	....	.85
September 2	....	.90
September 16	....	.85
September 17	1.25	....

some of the newer crude oil supplies such as West Texas are not desirable crudes for the manufacture of kerosene. The yields are relatively small and the refining operation expensive. This has tended to decrease yields in several refining areas and refiners were able to sell their output at steady prices.

Prices in the Mid-Continent slowly advanced throughout the first nine months of the year and toward the end of the year prices receded slightly. In Oklahoma which is representative of the Mid-Continent the refiners maintained an average price of 5.17 cents per gallon for the 41-43, water white kerosene with a high of 6½ cents and a low of 4⅛ cents. The average price for the first half of the year was 4.6 cents and the last half 5.74 cents.

In the New York export market there was little change in kerosene export prices throughout the year. The high for water white in cases was 18.9 cents and the low 17.9 cents with an average of 18.41 cents for the year. In the New York domestic market water white in bulk brought an average price of 8.03 cents per gallon.

Fuel Oils

All fractions of crude oil which were sold as fuels regardless of whether they were refined oils or a residuum product in the refinery operation brought exceptionally low prices in 1928. The fuel market was weak during 1927 and unlike gasoline there was no price upturn during 1928.

The controlling factor in this unfavorable market situation has been the low gravity crude oil production coming from the West Texas and California fields in kets where excess quantities have been the United States and Venezuela and Mexican crude oil among the foreign sources of supply. The oversupply of this grade of crude oil has been particularly burdensome to the Coastal mar- available from several sources with cheap water transportation.

In the interior market of the Mid-Continent and the Middle West an oversupply also existed during 1928 although as the year was brought to a close there were indications that the market situation was improving. A depressing factor in the interior market of particular importance to all Mid-Continent refiners was the large supply of crude oil from West Texas refiners. Several plants have been built in West Texas during the past year and a half. These plants for the most part are of the skimming type which have a fuel oil residuum to market amounting to 60 to 70 per cent of the crude oil charge. Large quantities have been sold in Chicago and other Middle Western points in competition with the refineries located in that section and the Mid-Continent.

In Oklahoma, a fuel oil below 18 degrees gravity started the year with a price of 80 cents a barrel. Prices steadily declined and by the middle of November had reached 50 cents a barrel, a price which continued over the remainder of the year. The average price for the year was 62.98 cents per barrel.

In the East Coast, Bunker C fuel oil of 14-16 degrees gravity brought an average price of $1.88 per barrel. The high early in the year was $1.35 with a gradual price decline through the year which brought prices to $1.05 at the end of the year.

In California, fuel oil prices were fairly steady throughout the year. This situation obtained although crude oil buyers found it necessary to further reduce prices on the low gravity crudes some of which are not considered refinable. Since the close of 1928 reductions in California fuel oils have materialized and improvement in the immediate future is anticipated.

The California 15-20 fuel at tidewater brought an average price of 86.92 cents for the year with a high of $1 and a low of 85 cents per barrel for the year. The previous year the same grade brought an average price of 92.21 cents per barrel and in 1926 the average price was 98.13 cents per barrel.

Diesel Oils

One of the important developments of the year was the increasing consumption of Diesel oils. This widening use of this grade oil by some has been held responsible for the weak fuel oil market in the Coastal section. Diesel powered boats to some extent at least have replaced the steam-driven boats using fuel oil.

Diesel oils, due to their close relationship to fuel oils as a product of crude oil, declined in price despite the large increase in consumption. In the New York domestic market 28-30 Diesel fuel brought an average price of $2.013 in 1928. In 1927 the average price was $2.2269 and in 1926, $2.4056.

Furnace Oils

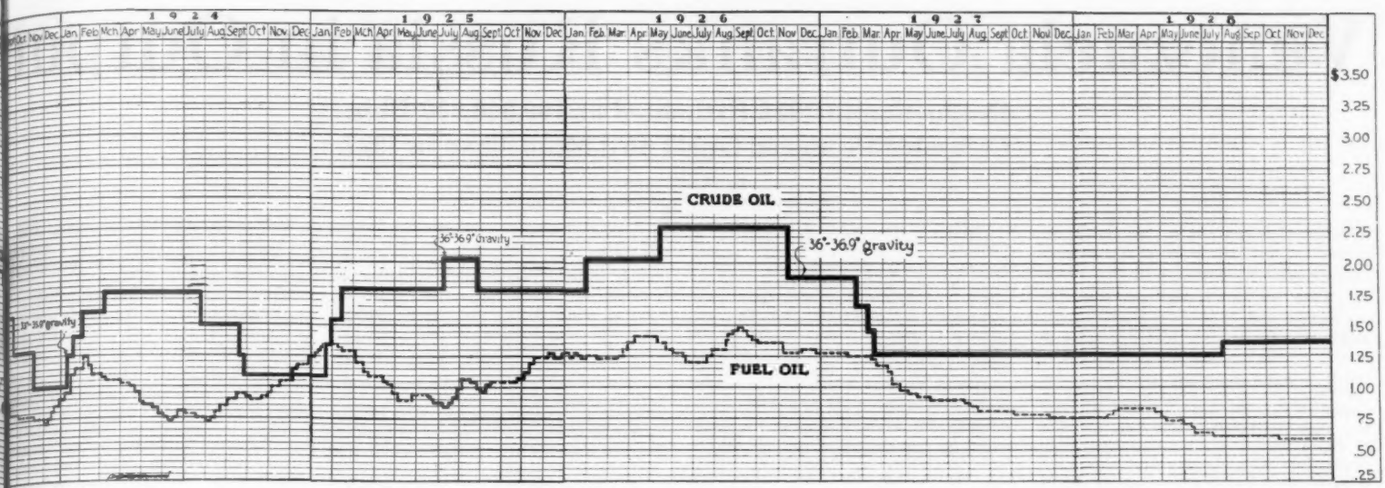
Although there are no accurate figures available covering the entire United States the increased number of burner installations indicates that the consumption of distillates as furnace oils increased in 1928. The active demand reported by refiners also supports this assumption. Prices at refineries were slightly lower in 1928 than 1927 and substantially under the price levels of 1926. However, due to the steady demand in the fall, winter and spring months the decline in prices was not as great as in the ordinary grades of fuel oils.

In North Texas, the 38-40 gravity grade brought an average price of 2.98 cents per gallon during 1928 and 3.13 cents in Oklahoma. In California a 27-32 distillate averaged 2.69 cents in 1928 and 3.19 cents in California.

Gas Oils

The market for gas oils during 1928 in general followed that of fuel oil. This development is inevitable, due to the fact that in the ordinary refinery operation it is relatively inexpensive to interchange the two products. The use of desirable gas oil in charging stock in cracking plant operations in addition to its use as fuel aids the market for that product, and in several areas operators were able to maintain firm prices despite a decline in their fuel oil prices.

In the New York domestic market 32-36 gas oil brought an average price of 5.3 cents per gallon in 1928 and 5.73



September 27 (33-35.9°)	1 10		
September 30			.92½
October 7			.90
October 21			92½
October 28			95
November 4			1 00
November 18			1 05
December 2			1 15
December 9			1.17½
December 30			1 25
1925—			
January 6			1.27½
January 13			1 30
January 20			1.32½
January 22		1.35	
January 27			1 35
January 30		1.55	
February 10			1.32½
February 12		1 80	
February 17			1.30
March 3			1 20
March 17			1 12½
March 24			1 10
April 14			1.05
April 21			1.02½
April 28			95
June 16			92½
June 23			90
June 30			87½
July 7			85
July 10 (36-36.9°)		2 04	
July 14			.87½
July 21			92½
July 28			1 00
August 4			1.07½
August 11			1.05
August 25			1 00
August 27		1.79	
September 1			.97½
September 8			1.02½
September 15			1 05
October 27			1.07½
November 3			1.12½
November 10			1.20
November 17			1.25
December 8			1.27½
December 15			1 25
December 29			1 27½
1926—			
January 5			1 25
January 12			1 27½
January 19			1.25
January 26			1.2
February 1		2 04	
February 2			1.25
February 15			1.22½
March 16			1.25
March 23			1.30
March 30			1.35
April 13			1.40
May 11			1.35
May 15		2.29	
May 25			1.30
June 1			1.27½
June 15			1.25
June 22			1.20
July 20			1.25
July 27			1.30
August 17			1.37½
August 24			1.42½
August 31			1.45
September 7			1.47½
September 14			1.45
September 21			1.40
September 28			1.37½
October 5			1.35
November 9			1.27½
November 17		1 90	
December 7			1.30
December 28			1 27½
1927—			
January 1		1 90	
January 4			1.27½
January 11			1.27½
January 18			1.27½
January 25			1.27½
February 1			1 27½
February 8			1 25
February 15			1.25
February 22		1.67	1.25
March 1			1.25
March 5		1.47	
March 8			1 25
March 12		1.28	
March 15			1.22½
March 22			1.17½
March 29			1.17½
April 5			1.12½
April 12			1 02½
April 19			97½
April 26			97½
May 3			95
May 10			95
May 17			92½
May 24			92½
May 31			92½
June 7			90
June 14			90
June 21			90
June 28			90
July 5			90
July 12			90
July 19			90
July 26			87½
August 2			85
August 9			85
August 16			80
August 23			80
August 30			80
Spetember 6			80
September 13			80
September 20			80
September 27			80
October 4			77½
October 11			77½
October 18			77½
October 25			77½
November 1			77½
November 8			77½
November 15			77½
November 22			75
November 29			75
December 6			75
December 13			75
December 20			75
December 27			75
1928—			
January 3			75
January 10			75
January 17			75
January 24			75
January 31			75
February 7			75
February 14			77½
February 21			.80
February 28			.82½
March 6			.82½
March 13			.82½
March 20			.82½
March 27			.82½
April 3			.82½
April 10			.82½
April 17			.82½
April 24			.80
May 1			.75
May 8			.72½
May 15			.72½
May 22			.72½
May 29			.70
June 5			.70
June 12			.67½
June 19			.62½
June 26			.62½
July 3			.62½
July 10			.62½
July 17			.60
July 24			.60
July 27		1 36	.60
July 31			.60
August 6			.60
August 13			.60
August 20			.60
August 27			.60
September 4			.60
September 11			.60
September 18			.60
September 25			.60
October 2			.60
October 9			.60
October 16			.55
October 23			.55
October 30			.55
November 6			.55
November 13			.55
November 20			.55
November 27			.55
December 4			.55
December 11			.55
December 18			.55
December 25			.55
1929—			
January 1			.55

cents in 1927. In North Texas, which is representative of the price trend in the entire Mid-Continent area, the average price was 2.31 cents in 1928 and 2.84 cents in 1927. In 1926, which was a year of exceptionally high crude oil prices, the same grade product brought an average price of 4.01 cents in North Texas.

Lubricating Oils

Developments for 1928 in regard to the refinery market for lubricating oils were somewhat mixed. In general, these two conclusions can be made. Neutral oils, particularly the low viscosity grades, were lower in price than during 1927. On the other hand steam refined cylinder stocks and bright stocks and the higher viscosity pale neutral oils were surprisingly strong the last half of the year 1928 and average prices for the year were as high or higher than during 1927.

The enlarged demand for the higher viscosity oils is explained as being due in part to changes in the consuming market. The trend toward higher compression ratios in automobile motors has been reflected in specifications for lubricating oils, the higher viscosity grades being in demand as blending material in the compounding of finished motor oils. This has meant a corresponding decrease in the outlets for the low viscosity neutral oils.

Ordinarily low priced fuel oils are to some extent reflected in all grades of cylinder stocks, the fuel oil being the raw material from which they are refined. But so great was the demand in 1928 for the paraffin base cylinder stocks that a scarcity developed during the summer of 1928 and the relative demand and supply situation continued strong over the balance of the year.

This cylinder stock demand is largely responsible for the steady advance in the posted schedules for Pennsylvania grade crude oils in the East.

Producers and refiners of Pennsylvania grade crude oils have created a wide demand for their finished lubricating oils through active sales campaigns. The supply of this grade is limited and when the demand increased rapidly the higher prices resulted. It will be noted that 600 Pennsylvania flash jumped from a low of 14 cents to a high of 29½ cents with an average of 17.89 cents for the year.

Pennsylvania bright stocks advanced from a low of 26½ cents early in the year to a high of 36 cents before the end of the year. The largest increases in these grades materialized toward the end of the year when the crude oil prices were advanced.

Refiners of cylinder stocks from paraffin base crudes in other areas have benefited from the advance in the Pennsylvania oils although the price increases have not been as great. Important price advances became effective in the Mid-Continent steam refined stocks and bright stocks during the latter part of the year.

Paraffin Wax

A heavy export and domestic demand for paraffin wax in 1928 resulted in a strong market situation. An overproduction in 1927 has caused a price decline in all areas, the 124-126 grade in Oklahoma selling as low as 2½ cents a pound. An increase in demand, which averaged around 30 per cent the first few months of 1928 over the same period in 1927, early in the year resulted in withdrawals from storage and prices began to improve. In Oklahoma the 124-126 grade advanced to 5 cents. The price advance in the eastern areas was not so great as in the Mid-Continent, but average prices for the year were higher on all grades than in 1927.

NATURAL GAS INDUSTRY HAD EVENTFUL YEAR

By Frank R. Coates
Of Henry L. Doherty & Co.

The year 1928 will probably go down as one of the most eventful years in the history of the natural gas industry. The progress which the industry has made in its transition from a position of local to one of national importance has, of course, been gradual. For several years the industry has been steadily growing in scope and stability.

While these developments were taking place public knowledge of the industry had failed to keep pace. Until comparatively recently the general public, outside of territories served, remained strangely ignorant of the increasingly important part played by natural gas in our national life.

During 1928 such great strides have been made that public interest has been awakened and 1929 should find securities of soundly conceived natural gas projects in the spotlight of investment approval.

Large industrial centers have been connected with future supplies which are sufficient to encourage the conversion of their manufacturing plants to the use of natural gas and to attract other large industries.

New fields have been tapped to supply distant cities which have never enjoyed natural gas service and the increasing network of pipe lines has brought hundreds of small communities the new blessings of a clean, labor-saving and efficient fuel.

As in all industries, there has been a number of ill-conceived projects, economically unsound. The investor should ascertain concerning any natural gas project in which he is interested:

a. That a supply exists, adequate for the markets to be served, at least during the life of the securities he intends to buy.

b. That there are profitable markets not already served and of sufficient size to justify the necessary investment in transportation, distribution and other facilities.

Since the average investor has not the facilities for satisfying himself concerning these details his greatest safeguard lies in confining his investment to companies whose sound judgment has been demonstrated by long and successful experience in the natural gas industry.

Venezuela Outranks Russia in Output

Production in 1928 Estimated at 100,000,000 Bbls. Colombia Produced One-Third More Than in 1927

By A. E. Mockler
New York Bureau, The Oil and Gas Journal

While agitation for a curtailment in production and shipments of Venezuelan crude continues, operators in that country have continued their development campaigns, and have been pushing production totals to new high levels from month to month during the past year. Detailed data on aggregate production for the year is not yet available, but it is estimated that the total for 1928 was not less than 100,000,000 bbls., an increase of approximately 60 per cent over 1927 production. Thus Venezuela during 1928 attained second ranking among the world producers of petroleum, superseding Russia, which is not expected to show over 80,000,000 bbls. for the year. Venezuelan output has more than replaced falling production in Mexico which during 1928 is estimated to have produced in the neighborhood of 48,000,000 bbls. This was a sharp falling off from the 64,121,000 bbls. which Mexico supplied in 1927 and the 90,421,000 bbls. produced by that country in 1926, in which year it ranked second among the world producers.

Production totals of seven of the larger companies operating in Venezuela for the first 11 months in 1928, with comparison with the corresponding period in 1927, follow:

VENEZUELA OIL CONCESSIONS
(Barrels of 42 U. S. gallons)

	Production		Shipments	
	1928	1927	1928	1927
January	1,759,764	1,882,843	1,754,537	1,404,900
February	2,330,636	1,813,600	2,359,427	1,418,300
March	2,681,571	1,898,999	2,807,420	1,348,200
April	2,769,311	1,675,332	2,779,049	1,383,200
May	3,100,677	1,736,595	3,150,207	1,328,322
June	2,967,815	1,740,651	2,913,063	1,555,400
July	3,247,523	2,034,886	2,606,537	1,578,200
August	3,364,926	1,590,463	3,238,671	1,362,747
September	3,345,453	1,676,086	3,238,550	1,282,482
October	3,527,260	1,732,038	3,410,400	1,718,324
November	3,376,065	1,639,693	3,190,300	1,623,893
First 11 months	32,471,001	19,421,169	31,448,161	16,003,968

LAGO OIL & TRANSPORT

January	2,061,117	958,613	1,826,003	790,827
February	1,925,604	895,695	1,780,544	857,962
March	2,070,568	908,900	1,873,173	816,682
April	1,897,110	1,074,651	1,870,816	774,365
May	2,206,387	1,049,446	2,259,056	866,178
June	2,240,066	975,113	2,206,849	830,183
July	2,325,636	1,326,438	2,444,592	1,116,622
August	2,271,363	1,445,403	2,506,976	1,356,257
September	2,944,018	1,636,816	2,231,043	1,479,828
October	3,529,100	1,701,092	2,501,968	1,455,481
November	3,722,066	1,944,875	2,452,568	1,686,280
First 11 months	27,193,035	13,917,042	24,053,588	12,030,665

GULF-CREOLE

January	706,147	587,087	745,440	421,864
February	791,373	414,763	818,500	329,100
March	1,024,282	415,500	959,025	268,300
April	855,608	354,726	878,640	231,328
May	1,066,000	393,619	1,102,280	261,653
June	973,000	560,333	1,049,220	224,084
July	1,138,267	569,330	1,232,440	390,600
August	1,097,569	641,900	954,720	424,842
September	1,027,111	607,400	1,009,650	473,544
October	1,156,845	555,000	1,194,500	514,700
November	1,129,106	744,243	1,298,580	724,711
First 11 months	10,965,309	5,843,901	11,232,955	4,264,726

GULF OIL

January	336,182	389,704	357,190	261,325
February	305,560	231,394	327,400	202,479
March	252,058	278,760	201,900	202,400
April	203,836	226,581	313,800	194,793
May	256,957	260,000	320,000	249,700
June	237,700	342,000	310,880	211,279
July	218,057	236,100	219,360	217,000
August	234,413	208,000	220,320	135,950
September	215,117	147,500	209,550	91,066
October	405,000	161,000	430,000	458,500
November	535,320	178,200	649,290	173,800
First 11 months	3,200,240	2,648,539	3,559,710	2,398,292

GULF VENEZUELA PETROLEUM

January	433,000	109,630	450,370	77,492
February	452,500	256,400	491,100	118,000
March	557,000	267,000	521,575	200,300
April	456,000	259,000	376,560	182,618
May	677,000	291,000	512,533	270,676
June	599,000	327,000	582,900	204,876
July	704,800	380,000	747,200	260,400
August	765,000	342,000	660,960	288,893
September	710,185	385,000	685,800	346,052
October	725,000	456,000	764,480	402,069
November	760,420	664,000	875,130	603,800
First 11 months	6,839,905	3,737,430	6,668,608	2,955,176

CARIBBEAN PETROLEUM

January	1,451,048	567,300	1,455,820	496,100
February	795,556	467,280	786,476	347,000
March	819,609	593,900	838,590	448,600
April	1,224,530	412,400	1,191,000	413,400
May	1,297,753	589,000	1,014,188	569,200
June	1,134,270	615,000	895,000	585,200
July	1,486,872	662,225	1,283,200	620,500
August	1,015,219	806,500	1,082,232	681,373
September	941,430	1,057,020	913,437	854,989
October	892,428	1,169,165	725,600	1,145,549
November	1,468,020	1,452,330	940,700	1,436,530
First 11 months	12,526,735	8,392,120	11,116,233	7,596,441

BRITISH CONTROLLED OILFIELDS

January	195,045	246,340	205,500	208,400
February	167,609	235,900	166,216	234,700
March	164,120	234,903	154,300	230,200
April	154,081	211,830	138,237	228,000
May	145,809	202,864	118,900	205,778
June	153,224	193,500	138,602	184,800
July	139,566	198,000	137,445	189,600
August	154,180	203,541	141,129	184,600
September	141,509	204,403	174,013	166,428
October	131,316	193,409	103,200	177,498
November	147,750	202,332	101,300	202,986
First 11 months	1,694,209	2,327,022	1,578,842	2,212,990

While reports in trade circles during the past few months have indicated that informal conversations were being held among some of the leading companies interested in Venezuelan output, with the view of establishing some sort of curtailment scheme, nothing definite has apparently developed in that direction. The continued heavy gains in production, in the face of the weak domestic crude market, are believed in some quarters to be dictated by a desire on the part of the operating companies interested to have as heavy a production as possible when any curtailment program goes into effect, to boost the production totals which they may be permitted under any percentage arrangement of prorating output. Accepting this theory as sound, the outlook for some sort of restriction measures in Venezuela appears rather bright.

Royal Dutch Dominates

Royal Dutch continues the dominating factor in the Venezuelan market, through its control of Venezuelan Oil Concessions, Ltd., the largest producer in the country, and the Caribbean Petroleum Co., which also ranks well as a producer. During the entire year 1928, it is estimated, Royal Dutch interests accounted for 50,000,000 bbls. of the entire production in Venezuela, close to 50 per cent of the total.

The Lago Oil & Transport Co., controlled by Standard Oil Co. of Indiana through Pan American Petroleum & Transport Co., is the second largest producer in Venezuela, accounting for close to 30,000,000 bbls. total output during 1928.

Sir Henri Deterding, managing director of the Royal Dutch-Shell interests, has on several occasions indicated his willingness to co-operate with American operators in some plan for conservation and regulation of Venezuelan oil operations. Thus far, however, it appears that the other leading companies interested in that country have not been able to meet upon common ground, and efforts of the proponents of the curtailment idea are now being devoted to arranging for some compromise in the views of the various companies concerned.

Plans for 1929

Notwithstanding curtailment talk, Venezuelan operating companies have gone ahead steadily with plans for a normal development of production and shipments. As of January 1, 1929, a total of 73 shallow draft tankers were reported in operation on Lake Maracaibo, with aggregate capacity of 1,148,000 bbls. Allowing for the normal length of time in loading and moving crude on the lake, this fleet can move slightly more than 9,000,000 bbls. per month from production to tidewater. During 1928 the fleet in service on the lake comprised 58 tankers, capable of handling a total of about 6,500,000 bbls. per month.

Fleets maintained by the principal producing companies, as of January 1, 1929, were as follows:

Company—	Number of tankers	Monthly capacity (bbls)
Lago Oil & Transport	19	2,240,000
Caribbean Petroleum	33	4,064,000
Gulf Oil	15	2,016,000
Creole Petroleum	3	480,000
Arend Maatschappij (Mexican Eagle)	3	384,000

With the entire fleet operating at capacity throughout the year, it would be possible for Venezuela to move close to 110,000,000 bbls. of crude to tidewater and thus into export markets during 1929, disregarding any possible further additions to the tanker fleets.

During November, 1928, the latest month for which detailed data are available, Venezuela produced 11,291,370 bbls. of crude, a new high record, and at the rate of 137,000,000 bbls. annually. At the beginning of that month there was approximately 4,500,000 bbls. monthly of shut-in production.

Thus it is evident that, aside from any curtailment measures, Venezuela's productive capacity at present is limited only by transport and storage facilities.

Storage and Pipe Lines

A total of more than 22,000,000 bbls. of steel storage tanks was in service, or building, on January 1, 1929. Of this total, Lago Oil & Transport was credited with 8,345,000 bbls., Gulf Oil ranking second with 5,890,000 bbls., the others being: Royal Dutch, 3,722,000 bbls.; Venezuelan Oil Concessions, 1,824,500 bbls.; Mexican Eagle Oil, 1,730,000 bbls.; and Caribbean Petroleum, 1,475,000 bbls.

Additional facilities for moving Venezuelan crude from the interior will be afforded upon completion of the 100-mile pipe line, construction of which will be under way early this year, by the Colon Oil Corp., controlled by the Royal Dutch interests. This line will run from the Tarra Field, in the western part of the Colon Concession, paralleling the Catatumbo River and extending to Lake Maracaibo. At present there are 31 completed wells in the Tarra Field, with estimated capacity of 15,000 bbls. per day.

With development of sufficient production, another pipe line is expected to be laid in Venezuela, extending from the Creole Petroleum properties in the district of Perija to Lake Maracaibo. In addition, Gulf Oil and Atlantic Refining, now drilling on the Andes Petroleum Co.'s properties in the districts of Mara and Paez, in northwestern Venezuela, are considering the construction of a 35-mile pipe line to the coast in the event that the drilling campaign now under way develops commercial production of the same type of high gravity oil shown by the discovery well.

Four Major Fields

A large proportion of Venezuela's present production is coming from four major fields: La Rosa, Lagunillas, Ambrosia and Mene Grande. Of these four, Lagunillas has been producing 50 per cent of the aggregate output, being credited with more than 91,250,000 bbls. of crude since its discovery two years ago. This production is from a drilled area of approximately 750 acres, an average of approximately 120,000 bbls. an acre. The field has been proved productive for a distance of 8 miles, with neither the width nor length yet fully determined.

With the low cost of production in Venezuela, and the cheap transportation to Gulf and Atlantic Coast refinery points, operators in Venezuela have been in position to produce and sell at a profit in the face of the present unfavorable market for crude, and more particularly with respect to runs of South American crude, fuel oil. With a higher fuel oil market talked for 1929 and nothing definite determined with respect to any curtailment measures in Venezuela, that country is expected to prove a still greater unsettling factor in the domestic market situation during 1929, unless prompt steps to correct the situation from a production standpoint are taken co-operatively by the principal companies interested.

Imports of crude oil from Venezuela and other South and Central American countries have attained a more important position in the East Coast refinery market this year. The extent to which foreign crude is displacing domestic crude in American markets is illustrated by Bureau of Mines figures covering imports for the first 11 months of 1928, with

(Continued on Page 288)

1928 Gasoline Tank Wagon Prices Low

Retail Market Did Not Reflect Rise in Refinery Quotations. Price Changes in 50 Representative Cities Given

By W. T. Ziegenhain

Despite a favorable gasoline tank car market at refineries extending over the latter part of 1928 the average gasoline tank wagon price for 1928 was lower than any yearly period during the past 12 years. This is based on the gasoline tank wagon prices existing on the first of each month in The Oil and Gas Journal's 50 cities scattered over the United States. This does not mean, however, the total revenue from gasoline was less, for the price during the months of high consumption during 1928 was higher than during those same months in 1927.

In comparing the two years, a gradual decline may be seen in the average monthly prices for 1927, the January 1 price of 17.56 cents falling to 14.21 cents by the end of the year. The reverse of this was true of 1928 when the price on January 1 of 14.29 cents went to 15.98 cents by the close of 1928, slightly higher averages being shown for a few intermediate months.

Just at present there is a tendency for prices to decline at scattered points but there have been no general tank wagon reductions. The weakness at present is no doubt due to the lesser seasonal demands and the decline in the refinery market. On the other hand, the seller cannot afford to reduce his price in proportion to the refinery price because of the smaller sales. If price reductions are posted during the early part of 1929, it is the general belief that these will be of short standing and over the year the general trend of retail gasoline prices will very likely continue upward.

Reviewing the condition of the market in the various sections of the country on January 1 of this year, a decided improvement is seen throughout the central states what is generally termed the Standard of Indiana territory. In these states, including the Dakotas, Kansas, Nebraska, Oklahoma, Texas, Arkansas, Missouri, Wisconsin, Illinois, Michigan, Indiana and Ohio, the average tank wagon price was 15.42 cents on January 1 of this year compared with 12.0 cents the same date a year previous or an improvement of 3.42 cents for the year. However, this only partly covers the loss sustained in this same territory over 1927 compared to 1926, when the average price fell from 17.2 cents to 12.0 cents, or a loss of 5.2 cents during 1927.

Southeastern States

The southeastern states showed the next greatest improvement as the average increased from 13.91 cents on January 1, 1928, to 15.73 cents at the close of the year. The states included in this section are Virginia, West Virginia, Kentucky, Tennessee, Georgia, North and South Carolina, Mississippi, Alabama, Louisiana and Florida.

The balance of the country showed very little change in average prices over the year, an improvement of .37 cent being shown in the average of the Middle Western states of Montana, Idaho, Wyoming, Nevada, Utah, Colorado, Arizona and New Mexico. The northeastern states including the New England group, New York, Pennsylvania, New Jersey, Maryland and Delaware showed an improvement amounting to .27 cent while the Pacific Coast states of California, Washington and Oregon showed no change.

Gasoline Taxes

Unlike 1927, gasoline state taxes advances were few in number and the average for all states remained practically unchanged. Three States, Virginia, Vermont and Mississippi advanced their gasoline tax while the Illinois and the Texas levies were lowered. On April 22, Virginia increased its tax from 4½ to 5 cents. Vermont followed on November 1 with an advance of 1 cent in its tax, the increase being from 3 cents to 4 cents. The last increase was made by Mississippi when its tax was advanced from 4 cents to 5 cents making it the seventh state to adopt this high levy. Tax collections during 1928 will exceed any previous year and will very likely exceed the $300,000,000 mark.

Because of the ease with which the tax can be collected, this method of raising money has been favored by the state legislators. When spent in other channels the gasoline tax ceases to fill its original purpose and should the determined efforts of certain scattered groups continue to agitate higher taxes there may be an equally strong reactionary effort made to test the legality of the existing laws as was done in Illinois.

Partly counterbalancing the advances made, there was a reduction of 1 cent made in the Texas gasoline tax from 3 cents to 2 cents on September 1. On February 25 the Illinois tax of 2 cents was declared illegal by the state supreme court and was discontinued.

TABLE NO. 1
Average Tank Wagon Prices in Cents in 50 Representative Cities for the Past Five Years

	1924	1925	1926	1927	1928
January 1	14.32	13.91	16.13	17.56	14.29
February 1	17.68	16.74	16.21	17.46	14.33
March 1	18.87	19.06	17.26	17.00	14.71
April 1	18.85	18.68	18.51	16.16	14.81
May 1	18.85	18.35	18.48	15.32	15.02
June 1	18.61	18.12	19.60	14.72	15.22
July 1	17.66	19.38	19.69	14.85	15.29
August 1	16.50	19.41	19.69	14.89	15.74
September 1	15.75	16.70	19.58	14.62	16.04
October 1	13.95	15.80	19.16	14.39	16.34
November 1	13.75	15.52	18.18	14.32	16.28
December 1	13.87	15.76	17.60	14.21	15.98
Average	16.55	17.37	18.34	15.46	15.34

TABLE NO. 2

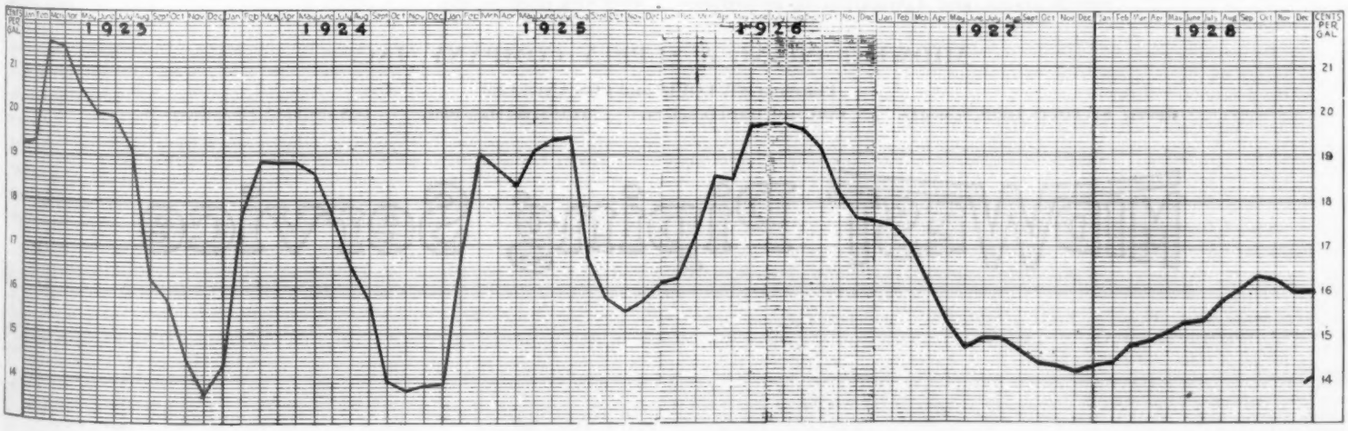
Following are the daily average tank wagon prices at Chicago for the past 15 years, based on dump price of 100 gallons:

1913	14.84c
1914	12.07c
1915	11.04c
1916	17.16c
1917	20.03c
1918	22.27c
1919	22.15c
1920	25.45c
1921	20.28c
1922	20.23c
1923	17.05c
1924	17.68c
1925	16.27c
1926	17.03c
1927	14.71c
1928	14.25c

TABLE NO. 3
Gasoline Tank Wagon Price Changes During 1928 as Shown by Districts

	Net gasoline tank wagon price Jan. 1, 1929	Jan. 1, 1928
Western Coast—		
San Francisco, Calif.	14.0	14.0
Portland, Ore.	14.5	14.5
Seattle, Wash.	14.5	14.5
Average	14.30	14.30
Increase		.00
Midwestern—		
Helena, Mont.	20.5	19.5
Boise, Idaho	20.5	19.5
Casper, Wyo.	16.0	14.0
Reno, Nev.	18.0	18.0
Salt Lake City, Utah	18.5	16.5
Denver, Colo.	14.0	13.0
Phoenix, Ariz.	14.0	19.0
Albuquerque, N. Mex.	17.0	16.0
Average	17.31	16.94
Increase		.37
Central—		
Fargo, N. Dak.	17.9	12.0
Huron, S. Dak.	16.3	14.5
Wichita, Kans.	13.8	10.8
Omaha, Neb.	15.25	12.25
Tulsa, Okla.	14.0	10.0
Dallas, Tex.	14.0	11.0
Little Rock, Ark.	16.0	11.0
Kansas City, Mo.	14.9	10.9
Des Moines, Iowa	15.5	11.9
Duluth, Minn.	16.5	12 5
Milwaukee, Wis.	15.1	13.1
Chicago, Ill.	15.0	14.0
Detroit, Mich.	15.8	11.8
Indianapolis, Ind.	15.2	10.2
Cleveland, Ohio	16.0	14.0
Average	15.42	12.0
Increase		3.42
Atlantic and New England States—		
Augusta, Me.	17.0	17.0
Manchester, N. H.	17.0	15.0
Burlington, Vt.	17.0	17.0
Hartford, Conn.	18.0	18.0
Springfield, Mass.	18.0	18.0
New York, N. Y.	18.0	17.0
Philadelphia, Pa.	16.0	15.0
Providence, R. I.	18.0	17.0
Newark, N. J.	15.0	16.0
Baltimore, Md.	15.0	16.0
Dover, Del.	16.0	16.0
Average	16.82	16.55
Increase		.27
Southeastern—		
Norfolk, Va.	15.0	16.0
Charleston, W. Va.	15.0	16.0
Louisville, Ky.	16.0	13.0
Memphis, Tenn.	14.0	12.0
Atlanta, Ga.	18.0	13.0
Charlotte, N. C.	15.0	16.0
Charleston, S. C.	15.0	15.0
Natchez, Miss.	16.5	12.5
Birmingham, Ala.	18.0	14.0
New Orleans, La.	12.5	12.5
Jacksonville, Fla.	18.0	13.0
Average	15.73	13.91
Increase		1.82

(Table Shown on Page 141)



Average tank wagon prices, 50 representative cities.

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CALIFORNIA GASOLINE INCREASING ITS IMPORTANCE IN THE EAST

By A. E. Mockler
New York Bureau, The Oil and Gas Journal

California gasoline assumed an increasingly important position in East Coast markets during the past year, Pacific Coast refiners shipping a total of 14,958,000 bbls. of motor fuel eastward, an increase of close to 35 per cent over the 11,128,000 bbls. of California gasoline moved to the East Coast during 1927. Overproduction of fuel oil in the East was paralleled by a drop in California shipments to the Atlantic Seaboard, while the movement of gas oil also fell off. Shipments of California crude oil eastward held up well during the first quarter of the year, but went into a decline during the second quarter and fell off sharply during the closing half.

Pacific Coast motor gasoline met with a ready demand in the East throughout the year, and was readily absorbed in eastern distributing channels. The movement of the gasoline was centered mainly in the hands of the large companies, which marketed the product through their own distributing organizations. Much of the Pacific Coast product found its way to the motorists of the East in the form of special premium motor fuel blends. Up to last year, California gasoline was generally a disturbing element in the East Coast market. This was particularly true in 1925 and 1926, when considerable quantities of California gasoline were virtually dumped in the East, this being responsible for much of the market demoralization which prevailed during those years. In 1927, California shipments still unsettled the market position somewhat from time to time, but during 1928, far from being a weakening influence, Pacific Coast motor fuel commanded a premium of a quarter to a half cent per gallon over eastern gasoline. This premium was eliminated early in the third quarter, when peak consumption for the season was over, but was restored during the closing week of the year.

Market in Strong Hands

While holdings of gasoline at California refineries continued top-heavy throughout 1928, the market was in strong hands during the greater part of the year, and there was no pressure to sell. In fact, during the second half of the year, eastern jobbers found it difficult to buy California gasoline in the open market, only

(Continued on Page 260)

GASOLINE TANK WAGON PRICES IN EFFECT DURING 1928, EXCLUSIVE OF TAXES, IN 50 REPRESENTATIVE CITIES, WITH AMOUNT AND DATE OF CHANGES. ALSO HIGH AND LOW PRICES FOR 1925, 1926, 1927 AND 1928, WITH GASOLINE TAXES IN EFFECT JANUARY 1, 1925, 1926, 1927, 1928 AND 1929

	Prices Jan. 1, 1928	Changes during 1928								Prices Jan. 1	High and low prices									Taxes				
											1928		1927		1926		1925			Jan. 1, 1925	Jan. 1, 1926	Jan. 1, 1927	Jan. 1, 1928	Jan. 1, 1929
Birmingham, Ala.	14 0	5/7 15 0	7/20 16 0	8/14 18 0	8/22 16 0	11/3 18.0				18 0	18 0	14 0	18.0	14 0	20.0	16 0	20.0	13.0	2 0	2 0	2.0	4 0	4 0
Phoenix, Ariz.	19 0	8/1 14.0								14 0	18 0	14 0	19 0	16 0	22 0	19 0	20.0	18 0	3 0	3.0	3 0	4.0	4.0
Little Rock, Ark.	11 0	2/27 14.0	4/2 15.0	8/4 16.0						16.0	16.0	11.0	15.0	11 0	18 0	14.0	19 0	12 0	4.0	4 0	4 0	5.0	5.0
San Francisco, Calif.	14 0	3/16	7/27	12/14						14 0	14.0	14 0	14 0	9 0	16.0	13.0	15.0	13 0	2.0	2 0	2 0	3.0	3.0
Denver, Colo.	13 0	14 0	16.0	14 0						14 0	16 0	13 0	18 0	13 0	20 0	16.0	20.0	12 0	2 0	2.0	2 0	3.0	3.0
Hartford, Conn.	18 0	1/18 16.0	3/6 18.0	6/1 17.0	7/27 18 0					18.0	18 0	16 0	22 0	18.0	21 0	17.0	21.0	15 0	1.0	2 0	2 0	2.0	2.0
Dover, Del.	16 0	6/27 17 0	3/8 18 0	9/19 17 0	11/16 16 0					16 0	18 0	16 0	19 0	16 0	20 0	17.0	21.0	15 0	2 0	2.0	2 0	3.0	3.0
Jacksonville, Fla.‡	13.0	5/7 14 0	7/30 15 0	8/14 17.0	12/4 18 0					18 0	18.0	13 0	16 0	10 0	19.0	12.0	19.0	12 0	5.0	4 0	4 0	5.0	5 0
Atlanta, Ga.‡	13.0	4/7 14.0	7/30 15.0	8/14 17 0	12/4 18 0					18 0	18.0	13 0	18.0	10 0	21 0	14 0	21.0	14 0	3 0	3.5	3 5	4.0	4.0
Boise, Idaho	19.5	8/25 20.5								20.5	20 5	19 5	22.5	19.5	24 0	20.0	21.5	19 5	2.0	3 0	3 0	4.0	4 0
Peoria, Ill.	9 0	2/2 11 0	2/12 13 2	8/1 14.2	10/1 15 2					15.2	15.2	9 0	18.2	9 0	19 2	10 5	19.2	10 5				2.0	
Chicago, Ill.§	14.0	10/1 15 0								15 0	15 0	14 0	17 0	14 0	18 0	15.0	18.0	13 0				2.0	
Indianapolis, Ind.	10 2	1/25 11 2	3/1 13.2	10/1 15.2						15 2	15 2	10.2	18 2	10.2	19.2	16 2	19.2	13 2	2.0	3 0	3 0	3.0	3 0
Des Moines, Iowa	11 9	4/19 13 5	8/1 14 5	10/1 15.5						15 5	15 5	11 9	16 0	9 9	19 5	16.0	19.5	13 5		2.0	2 0	3.0	3 0
Wichita, Kans.§	10 8	1/30 11 8	8/1 12 8	10/1 13.8						13.8	13.8	10 8	15.8	10 8	16 8	14 8	18.8	8 8		2 0	2 0	2.0	2 0
Louisville, Ky.	13 0	4/26 14 0	8/14 15 0	8/30 16 0						16 0	16 0	13 0	17 0	13 0	20 0	17 0	19.0	12 0	3 0	3.0	5 0	5.0	5 0
New Orleans, La.	12.5	4/4 13.5	8/4 19 5	10/16 12.5	11/26 10.5	12/17 12 5				12 5	14.5	10.5	14 5	11.5	17.5	13.5	18.5	11 5	2.0	*2 0	*3 0	*3.0	*3.0
Augusta, Me.	17 0	8/14 18 0	11/19 17.0							17.0	18 0	17.0	22 0	17 0	21 0	17.0	22.0	15 0	1 0	3.0	3 0	4.0	4.0
Baltimore, Md.	16.0	11/21 15 0								15.0	16.0	15 0	19.0	16 0	19 0	15.0	19.0	13 0	2.0	2 0	2.0	4 0	4.0
Springfield, Mass.	18 0	1/18 16 0	1/29 17 0	7/27 18 0						18 0	18 0	16.0	22 0	17 0	21 0	17.0	21.0	15.0					
Detroit, Mich.	11 8	2/27 13 8	8/1 14.8	10/1 15.8						15 8	15 8	11.8	18 8	11.8	19.8	16 8	19.8	13 8		2 0	2.0	3 0	3.0
Duluth, Minn.	12.5	4/19 14.5	8/1 15.5	10/1 16 5						16.5	16 5	12.5	19.5	12 5	20.5	15.5	20 5	13 5		2.0	2.0	2.0	2.0
Natchez, Miss.	12 5	5/7 13 5	7/30 14 5	8/14 15.5	8/30 16 5					16 5	16 5	12 5	15 5	12 5	18 5	15 5	18 5	11.5	3 0	3.0	4 0	4 0	5 0
Kansas City, Mo.	10 9	4/12 12 9	8/1 13.9	10/1 14 9						14.9	14 9	10.9	17.9	10 9	18.9	15 9	18 9	12 9	*3.0	*3 0	*3.0	*3 0	*3.0
Helena, Mont.	19.5	7/5 20 5								20 5	20 5	19 5	22 0	19 5	24 0	21.0	24.0	18.0	2 0	2.0	3 0	3 0	3.0
Omaha, Neb.	12 25	2/14 13.25	8/2 15 25							15.25	15 25	13.25	14.25	12 25	19.25	14 25	19 25	10 0		2 0	2.0	2 0	2.0
Reno, Nev.	18.0									18 0	18 0	18.0	18.0	15 0	19 5	16 5	18 5	16.5	2 0	4.0	4 0	4 0	4.0
Newark, N. J.	16 0	11/21 15.0								15.0	16 0	15.0	19.0	16 0	19.0	15 0	19 0	13.0				2.0	2.0
Albuquerque, N. Mex.	16 0	4/3 17 0	7/26 14.0	8/8 16.0	8/20 17 0					17 0	17.0	14 0	20 0	16 0	26 5	20.0	23 5	19.5	1 0	3.0	3.0	5 0	5.0
New York, N. Y.	17 0	7/27 18.0								18.0	18 0	17.0	22.0	17.0	21.0	17.0	22 0	15 0					
Charlotte, N. C.	16 0	8/6 17.0	11/21 15.0							15 0	17 0	15 0	19.0	16 0	19 5	15 0	20 0	12.0	3 0	4.0	4 0	4 0	4.0
Fargo, N. Dak.	12.0	2/23 15.9	3/1 16 9	10/1 17.9						17.9	17.9	12 0	20 9	12 0	21.9	18.9	20 9	14 9	1 0	1.0	1.0	2.0	2.0
Cleveland, Ohio	14 0	7/2 15 0	8/25 16.0							16 0	16 0	14 0	19 0	14 0	20 0	16.0	18 5	15.0		2.0	2 0	3.0	3.0
Tulsa, Okla.	10 0	2/25 12 0	4/2 13.0	4/19 12.0	6/12 13 0	8/2 14 0				14.0	14 0	10 0	15.0	10 0	17.0	13.0	18.0	9.5	2.5	3 0	3 0	3 0	3.0
Portland, Ore.	14 5									14.5	14 5	14.5	14.5	11 0	16.0	13 0	15 0	13 0	3 0	3.0	3.0	3 0	3.0
Philadelphia, Pa.	15 0	1/29 16 0	6/27 17 0	8/10 18 0	9/14 17 0	11/16 16.0				16 0	18 0	15 0	19 0	12 0	20 0	17.0	21 0	15.0	†2.0	†2 0	†2.0	†3 0	†3.0
Providence, R. I.	17.0	3/6 18 0	5/10 19 0	6/1 17.0	7/27 18 0					18.0	19 0	17.0	22.0	17.0	21.0	17 0	22 0	15 0		1.0	1.0	2 0	2 0
Charleston, S. C.	15.0	6/12 16 0	6/8 17 0	11/21 15 0						15 0	17 0	15 0	19 0	15 0	19 5	15 0	20 5	12.5	3.0	5 0	5 0	5 0	5 0
Huron, S. Dak.	14 5	8/1 15.5	10/1 16.3							16.3	16 3	14.5	19.5	11 5	20.5	14.0	20 0	13 0	2 0	3.0	3.0	4 0	4 0
Memphis, Tenn.	12 0	1/16 14 0	4/24 15 0	6/19 14.0	6/23 13.0	8/6 14.0	9/8 15.0	9/21 16.0	11/26 14 0	14 0	16 0	12 0	15 0	10 0	18 5	13.5	18.0	10.5	2.0	3 0	3.0	3 0	3 0
Dallas, Tex.	11 0	1/28 9 0	3/2 10 0	4/2 11 0	6/21 13 0	8/2 14 0				14.0	14.0	9.0	13.0	10 0	17.0	13 0	18 0	10 0	1 0	1.0	1.0	3 0	2.0
Salt Lake City, Utah	16.5	5/26 17 5	8/25 18 5							18 5	18 5	16 5	20 5	16 5	22 5	18 5	21 5	17.5	2.5	3.5	3 5	3 5	3.5
Burlington, Vt.	17.0	8/14 18.0	11/19 17.0							17.0	18 0	17.0	22.0	17 0	21.0	18 0	22.0	15 0	1.0	2.0	2.0	3.0	4.0
Norfolk, Va.	16 0	6/29 15 0	7/7 14 0	11/21 15.0						15.0	16 0	14 0	18 0	16 0	19 0	15 0	20.0	14 5	3.0	3.0	4 5	4 5	5 0
Washington, D. C.	16.0	11/21 15 0								15.0	16 0	15.0	19.0	16 0	19.0	15 0	19 0	14 0	2.0	2.0	2 0	2 0	2.0
Charleston, W. Va.	16.0	8/6 17.0	11/21 15.0							15.0	17 0	15 0	18 0	16.0	19 0	15.0	19.0	14 0	2.0	3.5	3.5	4 0	4.0
Milwaukee, Wis.	13 1	8/1 14 1	10/1 15 1							15.1	15 1	13 1	18.1	13.1	19.1	16 1	19 1	13.1		2 0	2 0	2.0	2.0
Casper, Wyo.	14 0	5/26 15.0	7/27 16 0							16 0	16 0	14 0	18 0	14 0	20 0	17 0	20.0	14 0	1.0	2.5	2 5	3 0	3 0
Seattle, Wash.	14.5									14.5	14 5	14.5	14.5	11 0	16.0	13.0	15.0	13 0	2.0	2.0	2 0	2 0	2 0
Minneapolis, Minn.	11.0	2/3 12.0	2/29 13.0	5/16 14.2	8/1 15 2	10/1 16 2				16.2	16 2	11 0	15.2	11 0	20 2	15 2	20 2	13 2		2.0	2 0	2 0	2.0
Average price	14.29									16.00	16 54	13.54	18.15	13.55	19.71	15.71	19 66	13 63	1.76	2.34	2 47	3.08	3.07

From January 1 to October 1, the Standard Oil Co. of Indiana observed the following quantity discount schedule: Tank wagon prices of gasoline subject to discount of 1 cent a gallon on dumps of 50 gallons or more throughout territory except Chicago district, where discount applies only to dumps of 100 gallons. Outside the Chicago district the following quantity schedule is in effect on monthly tank wagon deliveries of gasoline: 6,000 gallons or more, 1½ cents; 10,000 gallons or more, 2 cents; 15,000 gallons or more, 3 cents. These discounts include the 1 cent allowed on dumps of 50 gallons or more at one delivery. Within the Chicago district the following quantity discount schedule is in effect on tank wagon deliveries of gasoline; 750 to 2,000 gallons, one-half cent; 2,000 to 3,000 gallons, three-fourths cent; 3,000 to 6,000 gallons, 1 cent; 6,000 to 10,000 gallons, 1½ cents; 10,000 to 15,000 gallons, 2 cents; 15,000 gallons or more, 3 cents. These discounts are in addition to the special discount of 1 cent on dumps of 100 gallons at one delivery. If the quantity bought during the year is equal to or exceeds 12 times the agreed monthly quantity, the discount is paid or credited on the entire quantity at the close of the term less the monthly payments made during the year.

On October 1 the following schedule was placed into effect: The following quantity discounts from the service station price are allowed on monthly sales of gasoline; 2,000 gallons or less, 2 cents; more than 2,000 and less than 6,000 gallons, 2½ cents; more than 6,000 gallons, 3 cents. Discounts are allowed each month, and they are not cumulative. Delivery tickets showing date and quantity delivered must be sent to the seller before the tenth of the month to secure the discount on the previous month's purchases.

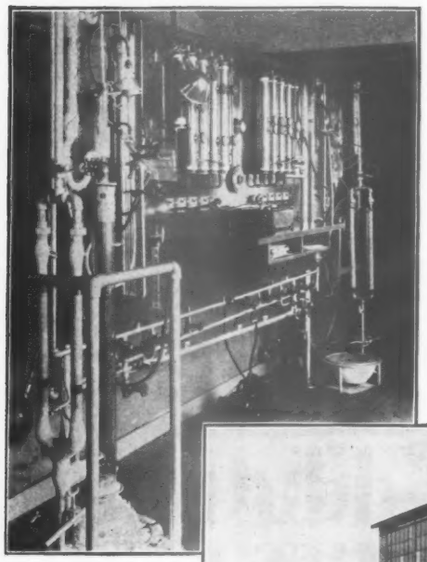
‡Jacksonville prices include one-eighth cent inspection fee, but at Atlanta one-half cent fee is not included.

§Chicago prices based on dumps of 100 gallons. All other Standard of Indiana points based on dumps of 50 gallons. Regular tank wagon posting 1 cent higher prior to October 1.

*Includes 1 cent city tax, as state tax is only 2 cents.

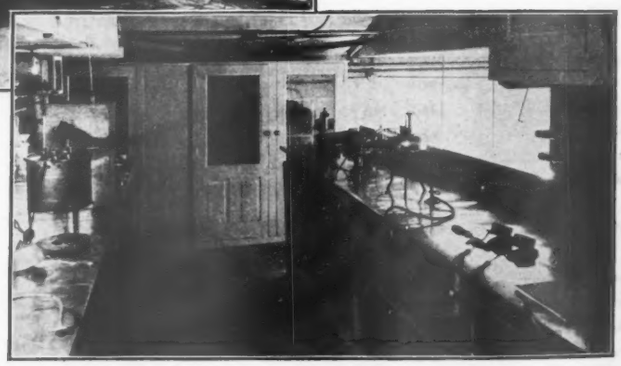
†Pennsylvania tax paid by dealers and is not to be added to tank wagon postings.

HUNDREDS OF



are in operation in the largest refineries in the United States and foreign countries.

The design of Badger Equipment is based on thorough fundamental knowledge of the principles of fractionation; careful study of the particular requirements of each problem; complete research and analytical work, and very extended practical experience and data.



E.B. BADGER & SONS

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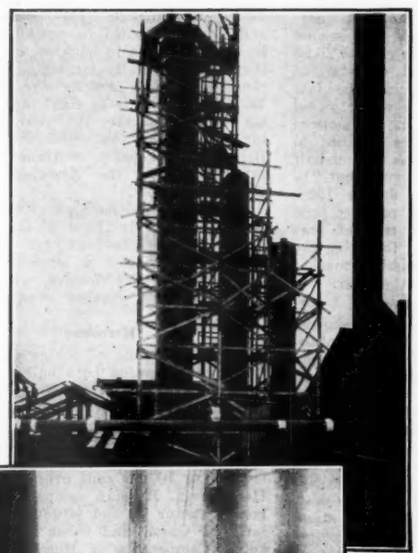
The Badger Organization is complete and comprises

Research and Analytical Laboratories

Engineering and Design Division

Manufacturing and Construction Organization

Operating Personnel



The following Companies are some of those who have purchased BADGER Equipment:

Magnolia Petroleum Co., of Texas
Roxana Petroleum Corp.
Craig Oil Co.
Freedom Oil Works Co.
Texas Pacific Coal & Oil Co.
Gulf Refining Co.
Skelly Oil Co.
Phillips Petroleum Co.
Pierce Petroleum Corp.
Tide Water Oil Co.
Anglo-Persian Oil Co. Ltd.
Empire Refineries, Inc.
Marland Oil Co.
Vacuum Oil Co.
Associated Oil Co.
Barnsdall Corp.
Humble Oil & Refining Co.
Tidal Refining Co.
Standard Oil Co. of N. J.
General Petroleum Corp.
Beacon Oil Company
Lubrite Refining Co.
Pennzoil Company
Shell Company California
New Orleans Refining Co.
Emlenton Refining Co.
Independent Refining Co.
Richfield Oil Co.
The Texas Co.

COMPANY

LOS ANGELES BOSTON

Oil Export Trade Increased in 1928

Outstanding Development Was the Movement to Form a Petroleum Export Corporation. Outlook for 1929

By A. E. Mockler
New York Bureau, The Oil and Gas Journal

While volume of foreign trade in petroleum products showed a material growth in East Coast refinery markets this year, this development was overshadowed in general interest by the movement undertaken by a number of leading market factors, under the general leadership of Walter C. Teagle, president of the Standard Oil Co. of New Jersey, for the formation of a petroleum export corporation, under the provisions of the Webb-Pomerene Act, permitting industries to organize, control prices, sales, etc., on foreign business. The decision to organize such a group is generally regarded as probably the most revolutionary step in the long history of petroleum exporting operations. Plans for the organization were brought to fruition in January, 1929, when a charter was granted to Export Petroleum Association, Inc., by the State of Delaware. The companies thus far in the association are: Atlantic Refining Co., Cities Service Co., Gulf Refining Co., Marland Oil Co., Richfield Oil Co. of California, Shell-Union Oil Co., Sinclair Consolidated Oil Co., Standard Oil Co. of California, Standard Oil Co. of Indiana, Standard Oil Export Corp., representing operating units affiliated with Standard Oil Co. of New Jersey, Standard Oil Co. of New York, The Texas Company of California and Vacuum Oil Co.

Low prices for principal refined products stimulated foreign buying last year, England, in particular, being a heavy purchaser. Extremely low charter rates on transatlantic tanker shipments was also a factor contributing to the increased European buying of American refined products. While export markets were low, the general returns to the refiners on this business were much more satisfactory than was the case in the previous year. On practically all of the major refined products, selling prices on export grades at the close of 1928 were higher than those in effect at the beginning of the year, substantial increases developing on cylinder lubricating oils. The trend of the market for the year is shown by the following tabulation of prices, by quarters, together with the price schedules in effect December 31, 1928, all figures being in cents per gallon:

NEW YORK (BAYONNE) EXPORT PRICES

	Jan. 1	April 1	July 1	Oct. 1	Dec. 1
Gasoline, U. S. Motor, 58-60 437, in cases	.2390	.2490	.2590	.2690	.2640
Kerosene, s.w., in cases	.1715	.1690	.1740	.1740	.1765
Kerosene, w.w., in cases	.1815	.1790	.1840	.1865	.1890
600, a.r., cylinder stock, in barrels	.17	.17	.19	.20	.30
635, steam refined	.19	.19	.21	.21	.31
650, steam refined	.20	.20	.22	.22	.34
600, Pennsylvania flash	.23	.23	.25	.26	.38
630, Pennsylvania flash	.35	.35	.34	.34½	.42
600, Warren E	.25	.25	.25	.26	.35
600, Oil City E	.24	.24	.24	.25	.34
Light 140-150 Bright Stocks	.44	.44	.43	.44	.46
Dark 140-150 Bright Stocks	.42	.42	.41	.42	.44

Marked Gains in Exports

Detailed data on the export movement for the entire year is not yet available. The following figures, covering exports for the first 11 months of 1928, with comparison for 1927, illustrate the marked gains registered in principal products:

	First 11 months 1928	First 11 months 1927
Gasoline, bbls.	49,995,000	41,183,000
Kerosene, bbls.	20,825,000	18,283,000
Gas and fuel oils, bbls.	41,208,000	43,563,000
Lubricating oils, bbls.	10,177,000	8,992,000
Paraffin wax (thousands of pounds)	365,020,000	309,754,000

Gasoline

Exports of gasoline for the first 11 months of 1928 amounted to 49,995,000 bbls., an increase of 8,812,000 bbls., or more than 20 per cent, over the similar period in 1927. These figures, of course, are for the country as a whole, but are fairly representative of the increased volume experienced by East Coast refiners during 1928.

Cased Gasoline Strong

While bulk stocks continued to grow in importance in export totals, business in cased gasoline was well maintained throughout the year, and the market was strong. The cased product opened the year at 23.90 cents a gallon, showed a full cent advance during the first quarter, a similar gain during the second quarter, and was up another cent to 26.90 cents a gallon by October 1, the start of the closing quarter. During the last three months of the year, however, cased gasoline became involved in the general market weakness and prices declined to 26.40 cents a gallon, a loss of one-half cent from the peak for the year, but 2½ cents over the low price during 1928. The market for the cased product held up much better than was true of that for bulk gasoline, the latter following the trend of the domestic jobbing market rather closely throughout the year.

Some Uneasy Moments

Although export sales in 1928 showed satisfactory increases over 1927 totals, there were a number of developments during the year which gave East Coast refiners uneasy moments. The first development of this character was the intensified Russian competition on gasoline business with Europe and other markets. The Russian Naphtha Syndicate made considerable strides in extending its foreign outlets during the year, and was not inclined to let price stand in the way. Against this type of competition, American refiners and export operators were at times powerless to compete, and were forced to let some of the business which they had formerly handled get away from them. No letdown in competition from Russia is looked for during 1929, although there are definite indications that the American petroleum industry will be in much better position this year to cope with the situation.

California Again a Competitor

California entered the picture to some extent as a competitor with East Coast and Gulf gasoline exporters during 1928. During the fall months, a number of cargoes for Europe, on which Atlantic and Gulf refiners had been bidding with no thought of another source of supply being "in" on the business, were placed in California for shipment to France and England, via the Panama Canal. Russia during the year bought from 10,000 to 20,000 tons of California gasoline, the purchase giving rise to rumors that the Soviet Naphtha Trust was oversold and was being forced to buy American gasoline to take care of its orders. The sale was explained, however, by announcement that the Russian syndicate wanted the California motor fuel to use in the making of a high-test blended product.

The Spanish Petroleum Monopoly was a large buyer of American gasoline during 1928, and is understood to have large contracts placed in this country for delivery during 1929.

British Refiners Control Operations

Great Britain greatly increased its operations in the American gasoline market last year, finding it more economical to purchase motor fuel in Eastern and Gulf markets, and ship it to England, than to import the crude and refine it at home. This naturally made for a sharp falling off in refinery operations in Great Britain. Russian competition in English markets throughout the entire year was so intense, however, that the British companies had little choice in the matter, and were compelled to curtail their refining operations to such an extent that they were virtually marketing organizations exclusively during the whole of 1928. No relief is in sight for the British refining industry this year, and buying of gasoline for shipment to Great Britain is expected to continue an important factor in the American market throughout 1929.

France has become an increasingly important factor in East Coast gasoline markets during the past year, and refiners have developed a large volume of business with that country, which is expected to show further expansion this year.

Kerosene

Sales of burning oil for export showed consistent gains on both bulk and cased stocks during the past year. While the growth in volume was not as large as was the case with gasoline, it is estimated that export movement from East Coast refineries showed gains ranging from 5 to 10 per cent over 1927 totals. Here again, Russian competition was a potent factor in the situation, particularly in China and other Asiatic markets. Competition of Russian kerosene, as well as that produced from other sources outside of the United States, is expected to cut further into the potential foreign outlet for the American product during 1929.

A notable development during 1928 was the establishment of a differential of 1¼ cents between the prices for standard white and water white kerosene in favor of the latter, against the previously prevailing margin of 1 cent per gallon. Net gains of one-half cent and three-quarters cent, respectively, were shown on standard white and water white at the close of the year. All of the foregoing refers to cased kerosene. In the bulk market, a differential of 1¼ cents was established for a time between prime and water white, but sellers were unable to maintain the spread, and the market reverted to the old 1-cent margin.

While business in cased kerosene showed gains in markets normally drawing supplies of the canned product, the bulk market showed greater expansion in point of actual volume increase. A number of straight kerosene cargoes were shipped abroad during the year, while the average 6,000 to 8,000 tons refined products cargo usually included from 1,000 to 2,000 tons of kerosene.

Refiners in this area express themselves as optimistic regarding the outlook for kerosene in foreign markets this year, but are of the opinion that the business will be obtained against stiffer opposition than hitherto and that the normal expansion in this direction will be checked somewhat by competition from other producing and refining companies.

Other Products

Material gains in sales totals were recorded for lubricating oils during 1928. This was true particularly of cylinder stocks, which showed very sharp price advances during the closing quarter of the year, on heavy buying by England, France and other European countries, as well as South America and Africa. Details of the price trend on this product are shown in the accompanying table.

Notwithstanding the low prices at which fuel oil was obtainable at all times during the year, export movement of fuel and gas oils fell off for 1928. Refiners are none too optimistic concerning the outlook for these products in export channels this year, unless the proposed export association should be able to work a change for the better.

Sales of paraffin wax for shipment abroad registered gains ranging from 15 to 20 per cent over 1927. Business in this product was good during practically the entire year, although the real heavy buying movement developed during the second and third quarters. Mounting sales were paralleled by increasing prices, and the market recorded substantial gains on all melting points. Continued heavy export buying is anticipated for 1929.

The Export Association

Definite steps for a centralization of all export activities on the part of the American petroleum industry were taken during the latter part of the year, when a group of executives of leading oil companies met here, under the chairmanship of Walter C. Teagle, president of the Standard Oil Co. of New Jersey, to discuss the outlook for their products in foreign markets. The outcome of this meeting was a decision to organize a Petroleum Export Corporation, under the provisions of the Webb-Pomerene Act, permitting American industries to organize co-operatively to market their products abroad, and exempting such export corporations from the provisions of the anti-trust laws. After preliminary discussion of the plan, and decision to go ahead with it, a number of committees were organized to investigate the manifold details which formation of such a concern involves. During the progress of the American Petroleum Institute convention in Chicago, the sponsors of the group again had an opportunity to come together and consider the findings of the various committees which had been working out the details of organization. At this time also the projected organization was unfolded to the industry as a whole, and some of the proposed plans outlined. With participation and support by the rank and file of the industry assured, sponsors of the export group have gone ahead with their plans, and announcement of formal incorporation of the export corporation, probably under the laws of Delaware, is expected at any time.

A United Front

Besides making for greater efficiency and economy in marketing operations the export association is exected to enable the American petroleum industry, as a unit, to present a united front in its marketing operations abroad. A similar consolidation of export activities was recently consummated by Royal Dutch-Shell interests with Anglo-Persian Oil and Burmah Oil.

While one of the prime purposes of the new export group will be to establish and maintain prices for American products in foreign markets, it will also be in position to greatly enhance the net returns from export sales activities through the placing of foreign business in markets nearest the point of destination. Under previous competitive conditions, much added expense has been borne by the industry in this manner. East Coast refiners, for example, shipping products to markets closer to Pacific Coast terminals, and vice versa. Much of the extreme long-haul business will be so arranged that appreciable savings in transportation will ensue.

Would Take in Whole Industry

Contrary to the earlier fears expressed

(Continued on Page 262)

Year of Good Business on East Coast

Outside of Fuel Oil, Refinery Products Showed Strong Recovery in 1928. Improved Prices and Increased Volume

By A. E. Mockler
New York Bureau, The Oil and Gas Journal

East Coast refinery products showed a strong recovery during the past year, and the market witnessed material gains both in volume of sales and prices. Profit margins, naturally, shared in the general improvement. The year was notable not only for the greatly increased volume of sales on principal refined products, but for the higher type of competition which prevailed throughout the territory as well, considerable improvement in this latter respect having been shown while the industry's code of ethics was still in the making.

In point of actual price appreciation, cylinder oils were the outstanding feature of the year in the East Coast situation, but the recovery in gasoline prices was the most significant development, from the standpoint of both volume and importance to the trade.

Refiners have not completed computation of their gasoline sales totals for the year, but preliminary reports indicate that sizable percentage increases have been shown by the principal refiners and marketers in the field. Sales of premium gasolines went ahead notably during the year, with a general effort on the part of principal factors to better the quality of their products. This effort generally took the form of turning out a higher-test product, with quick starting, high-compression properties, and the larger refiners vied with one another in their efforts to corral the business on premium motor fuels.

Fuel oil was the weakest item in the refined products list during the year, showing consistent softness throughout. Heavy overproduction, with consistent sales pressure, weakened the market early in the year and while the situation showed some signs of approaching stability toward the close of the year, no price recovery materialized, and it was doubtful that any substantial improvement in selling prices might logically be looked for. Heavy arrivals of South American crude at East Coast refineries, together with a large supply of low-grade West Texas oil, accounted for the unfavorable showing in this division of the market during the year.

Gas oil and kerosene were both in rather stable position throughout 1928, with sales running into satisfactory totals, and prices well maintained.

Among the minor products, paraffin wax showed outstanding firmness during the year, and bids fair to show continued strength during the first quarter of 1929, and probably well into the new year, unless some unlooked-for reaction in demand or unexpected spurt in production should be registered.

Details of the market trends on the various refinery products during the past year follow:

Gasoline

Reports from leading refining and marketing interests indicate that the increase in gasoline volume in the East Coast area, considering both domestic consumption and export sales as well, has been between 12 and 20 per cent, on the average. Refiners believe that a further increase of 10 per cent or more may reasonably be looked for during 1929, although sharp competition from Venezuela in export gasoline markets is anticipated with the completion shortly of the new Lago refinery at Aruba, Dutch West Indies.

Gasoline prices in tank car markets were satisfactory from the refiners' standpoint throughout the year. Starting off at 8¼ cents a gallon in January, the market strengthened consistently, touching the high point of 11¾ cents during the third quarter, under the stimulus of record consumption by motorists throughout the territory. The peak price held well into the closing quarter, the market selling off to 11 cents a gallon, and dropping to 10½ cents three days before the close of the year. Refiners had expected to carry the 11-cent quotation over into the new year, but an unexpectedly severe reaction in the Mid-Continent market, together with sharp price reductions in export prices at the Gulf, forced the East Coast trade to reduce its prices to hold home markets against outside competition.

While California gasoline was an important factor in the East Coast area throughout the entire year, it was under close control at all times, and the situation in this respect differed radically from conditions prevailing during 1927 and 1926, notably the latter year, during which large quantities of distressed California gasoline found their way eastward, and were virtually dumped along the Atlantic Coast with disastrous results to the business of Eastern refiners. The more orderly movement during 1928 was due in some measure to consolidations whereby large integrated companies in the East secured control of prominent California producing and refining groups. In addition, increasing gasoline consumption on the Pacific Coast, together with a broader export movement of California gasoline, were also important factors in stabilizing the motor fuel situation in the West, lightening the burden of the California refineries and relieving the selling pressure which had existed.

California gasoline has acquired a reputation in the East for antiknock qualities, and Pacific Coast motor fuel is now being used largely in the various blends of premium gasoline which are being marketed by the Eastern trade. During the greater part of the year, California U. S. Motor was commanding a quarter-cent premium over Eastern gasoline in jobbing markets, while at one time, during the height of the summer motoring season, the California motor fuel was selling at New York at a half cent per gallon over the basis ruling of U. S. Motor produced at other refinery points.

The price range on principal refinery products at Bayonne for the past year is illustrated by the following table (all prices per gallon unless otherwise specified):

NEW YORK (BAYONNE) REFINERY PRICES

	Jan. 1	April 1	July 1	Oct. 1	Dec. 31
Gasoline, U. S. Motor, 58-60 437	$0.08¼	$0.09	$0.10¾	$0.11¾	$0.10½
Kerosene, water white, 41-43	.07½	.07½	.08	.09	.09
*Fuel oil, Bunker "C", 14-16, bbl.	1.35	1.35	1.15	1.05	1.05
‡Fuel oil, Diesel, 28-30, bbl.	2.10	2.00	2.00	2.00	2.00
Gas oil, 32-36 gravity	.05¼	.05¼	.05¼	.05¼	.05¼
25 pale Paraffin oil	.12	.12	.12	.11¾	.11¾
28 pale Paraffin oil	.07	.07	.07	.07	.07½
285 red Paraffin oil	.11½	.11½	.11½	.11½	.11½
250 red Paraffin oil	.10½	.10½	.10½	.10½	.11
225 red Paraffin oil	.09½	.09½	.09½	.09½	.09½
200 red Paraffin oil	.09	.09	.09	.09	.09
Refined Wax—					
120-122 a.m.p., per lb.	.03⅞	.04	.04⅝	.05½	.05⅝
125-127 a.m.p., per lb.	.04	.04½	.04⅝	.05⅝	.05⅞
130-132 a.m.p. per lb.	.04½	.04½	.04⅞	.06½	.06⅝
135-137 a.m.p., per lb.	.05¼	.06	.06⅝	.07⅝	.07⅝
Petrolatums, in bbls., carload lots, per lb.—					
Dark green	.01⅞	.02	.02	.02	.02
Amber	.03⅝	.03⅝	.03¼	.03½	.03½
Extra amber	.03⅝	.03⅝	.03⅝	.03⅝	.03⅝
Cream	.06½	.06½	.06⅝	.06½	.06¾
Lily white	.08½	.08¼	.08	.07¼	.07¼
Snow white	.09½	.09¼	.08¼	.08¼	.08¼

*Lighterage, 5.0c a barrel extra. ‡Lighterage 6.5c a barrel extra.

Tank Wagon Gasoline

Gasoline tank wagon markets were generally satisfactory in 1928. Interesting developments aside from the price trend, included the removal of the ban on sales of ethyl gasoline in New York City, and a narrowing of the profit margin on retail sales of U. S. Motor to a general average of 2 cents a gallon. Starting the year at 17 cents a gallon in New York and New England territory the market held at that level well into the summer motoring season, at which time a 1-cent advance was put into effect bringing the market up to 18 cents. Late in the year, prices were reduced to the 17-cent level in all parts of the territory, with the exception of New York State, where the 18-cent level still held at the close of the year.

Marketing conditions during the first quarter of 1928 were anything but favorable. Most of the large companies were in the position of having plenty of gallonage, but little net profit on the business, this being due to the many uneconomic practices which had crept into marketing operations during the scramble for gallonage which became intense during 1927. Thus, it was no uncommon thing for a company to be furnishing retail station operators with gasoline at from 2 to 6 cents per gallon below the published tank wagon quotation, and to be subsidizing retail customers through advertising allowances, free equipment, rentals, etc. Early in the year, several leaders in the industry in the East Coast area came to a realization of the inevitable results of a continuance of current market practices. With this "awakening" there was a marked letdown in the selling pressure. In effect, the marketers adopted as a slogan "A profit or no sale," and many of the unethical practices which had come to be commonly recognized phases of the gasoline selling game were eliminated. Old preferential contracts were not renewed upon expiration, and refiners got back to a selling basis where they were again stressing quality and service, rather than price.

General "Housecleaning"

With the general housecleaning in marketing methods, refiners and marketers likewise decided to take definite action establishing a retail price for their gasoline. Standard of New Jersey took the lead in this effort, putting a 2-cent margin on its gasoline, and making this differential effective through the influence of the pricing activities of its owned and controlled stations. Most of the other large interests in the area took similar action.

At no time during 1928 was there anything in the nature of a general price war in East Coast territory. Slight market disturbances developed at isolated points, but nothing approaching the proportions of the price wars that had been prevalent in former years developed in 1928. At one time during the summer

(Continued on Page 264)

IMPROVED MARKETING PRACTICES A FEATURE IN EAST IN PAST YEAR

By A. E. Mockler

Improved competitive conditions in the marketing division played an important part in the general betterment of trade conditions in the Atlantic Coast area during the past year. The competitive situation throughout the eastern area had been going from bad to worse during the years 1926 and 1927, and early in 1928 conditions finally reached the point where practically all economic considerations were being relegated to the background in the quest for gallonage in the gasoline market.

Price wars in numerous parts of the territory had become almost a common occurrence, and at times the situation was so bad that sales managers of large marketing groups often learned through reports of price wars in the daily papers what their own sales organizations were doing in different parts of the territory. At times when competition was particularly sharp and price cutting general, branch managers in individual towns and cities throughout the territory were given carte blanche to name whatever prices they considered necessary. "Meet competition" was the order of the day, and with the markets honeycombed with rumors of price cutting by competitors, the situation reached the point where branch sales offices were often "meeting" phantom competition and by their own activities were aiding in creating a condition of almost complete demoralization in marketing operations.

With co-operative action meeting with a fair measure of success in the producing end of the business, and drastic steps required to bring the marketing operations back to a normal and economic basis, leading executives in East Coast territory began to center their attention on the problems of their marketing divisions. While it was considered essential to hold volume to the highest point possible, the fallacy of building extensive gallonage upon profitless trading was readily apparent and a gradual change became apparent in sales practices of a number of the larger companies.

Building Up Trouble

Most of the integrated companies operating in the East Coast territory had gone into distributing markets and "sewed up" the business of numerous privately-owned filling stations. For an agreement on the part of the operator to stock only the brands of the contracting refiner or marketer, the seller generally gave the station operator special contracts. The provisions of these contracts varied with the intensity of the competition to be met and overcome. Some of these agreements extended the station operator rebates, based upon his volume of sales. Others gave the buyer a cut of 2 to 6 cents under the published tank wagon quotation on his purchases. Still other contracts went further than this, and gave the distributor a special price, a rebate on sales, the free loan of equipment, and, in some instances, a monthly payment to cover "advertising," this advertising consisting of the prominent displaying of the signs and placards of the company whose products were being handled at the station.

With these conditions prevailing, the profit in gasoline marketing was going principally to the distributor. Had the

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New Pools Found in Rocky Mountains

Old Pools Extended and Deeper Horizons Proven Productive, Yet Field Work and Production Show a Decline

By Tolbert R. Ingram
Staff Correspondent, Rocky Mountain Area

While drilling operations in Wyoming, Colorado, New Mexico and Utah in 1928 resulted in a considerable decrease in the number of completions and amount of new production as compared with 1927, there were several new pools discovered, old pools extended and deeper horizons proven productive.

Wyoming was credited with the opening of a light oil pool on the Alkali Butte Dome in Fremont County by the Texas Production Co., one new gas field in Fremont County by the Producers & Refiners Corp., and three black oil pools on the Frannie Dome in Park County, the North Sunshine Dome in the same county, and at Bolton Creek in Natrona County. In addition, the Oregon Basin Field was extended to the south dome, the black oil area in Grass Creek was proven for an additional 1,000 acres, the Ant Hills Dome in Niobrara County was given a small extension, and the Hiawatha gas field was enlarged by an extension from across the Colorado line. Eight of the more important structural tests proved to be failures.

Colorado had one new discovery on the South McCallum Dome in Jackson County in a well drilled by the Continental Oil Co. which is making gas at very low temperature with small quantities of very high gravity oil. Drilling in the proven fields was on a reduced scale with some extensions of the productive area at Wellington, Iles and Florence. Fifty-five per cent of all completions in the State were in the Florence-Canon City District. Thirteen of the more important structural tests were abandoned as failures and in one field drilling to deeper horizons found new production.

In New Mexico the principal activity centered in the southeastern part of the State where the Midwest Refining Co. opened a new pool on the Hobbs high in Lea County, and where several important wildcats which had large flows of gas or good showings of oil pointed to more promising results in 1929. The number of completions and new production showed a decrease in comparison with results in 1927.

Utah han another year in which wildcatting failed to develop any oil pools.

Ups and Downs of Production

With one more day in 1928 than in 1927 Montana produced 3,998,549 bbls. as against 5,171,883 bbls. in the previous year, a decline of 1,173,334 bbls. Wyoming 21,403,460 bbls. in 1928 and 20,983,675 bbls. in 1927, an increase of 419,785 bbls.; Colorado 2,744,184 bbls. last year and 2,722,670 bbls. in 1927, a gain of 21,514 bbls.; and New Mexico 973,881 bbls. last year and 1,214,284 bbls in 1927, a decline of 240,403 bbls. The Rocky Mountain area in 1928 produced 29,120,074 bbls., a decline of 972,438 bbls., compared with the production of 1927 which was 30,092,512 bbls.

Wyoming

A large reduction in the number of wells completed in Wyoming in 1928 was due principally to the curtailment of drilling operations in the Salt Creek Field, where there were only 47 completions with an initial production of 10,941 bbls., compared with 196 completions and flush production of 123,339 bbls. in the preceding year. In all of the older producing fields, such as Grass Creek, Elk Basin, Big Muddy, Rock Creek and Lost Soldier, drilling was held down to a minimum, or discontinued during the year altogether, this being possible on account of the unit operation of the pools which permitted a systematic and orderly production of crude in accordance with market requirements. Altogether there were 203 wells completed in Wyoming in 1928, compared with 339 in 1927, a decrease of 136 wells. The initial production was 27,043 bbls., in 1928, compared with 133,804 bbls. in 1927, a decrease of 106,761 bbls.

Notwithstanding this decrease in the proven areas, the state as a whole made considerable progress. Five new pools were discovered, exclusive of the south Oregon Basin Dome, and three of the oil pools and one gas field were extended either by wells opening new terrtory or discovering lower productive horizons. Eight important structural tests were failures, while one structure proved a failure in lower horizons and several operations of lesser importance failed to open up anything new.

The number of completions credited to Salt Creek included some shale wells outside of the field proper and serving to increase the total figures, the drilling in the field proper by the Midwest group being confined mostly to deepening Lakota shale wells to the sand and drilling five Sundance sand tests. During the last half of the year runs from Salt Creek were around 40,000 bbls. per day, of which 28,000 to 30,000 bbls. was from the Wall Creek sands and 10,000 to 12,000 bbls. from the Lakota sand. Towards the end of the year the runs showed a decrease. The Lakota sand wells, of which there are less than 100, are shut in with the exception of those around the outer limits of the pool, the shut in wells having an estimated capacity of 75,000 to 90,000 bbls. per day. There were less than half a dozen wells being drilled in the field at the end of the year. It is understood that the program for 1929 does not include any drilling in the Wall Creek sands, but will be confined mostly to deepening Lakota sand wells to the Sundance. Sundance sand wells drilled during the year tested out additional territory. The best one was the Wyoming Associated Oil Co.'s No. 16-SD, NW Section 35-40-79, which made 3,060 bbls. first 24 hours after which it was shut in. Two Sundance tests in the NE Section 27-40-79 and SW Section 25-40-79 were drilled to the third bench of the Sundance and plugged back.

Oregon Basin Discoveries

The Oregon Basin Field in Park

Wyoming
Daily Average and Monthly Production in 1928

	January (bbls.)	February (bbls.)	March (bbls.)	April (bbls.)	May (bbls.)	June (bbls.)	July (bbls.)	August (bbls.)	September (bbls.)	October (bbls.)	November (bbls.)	December (bbls.)	Total (bbls.)
BIG MUDDY—													
Daily average	2,673	2,720	2,716	2,644	2,598	2,685	2,739	2,743	2,716	2,566	2,653	2,552	
Month	82,880	78,908	84,196	79,320	80,538	80,550	84,909	85,033	81,480	79,546	79,590	79,112	976,062
BYRON—													
Daily average	34	40	47	44	46	37	30	28	30	39	33	38	
Month	1,059	1,152	1,457	1,320	1,426	1,110	930	868	900	1,209	990	1,178	13,599
DUTTON CREEK—													
Daily average	.....	.....	.....	.....	165	50	50	27	66	49	49	65	
Month	.....	.....	.....	.....	5 115	1,500	1,550	837	1,980	1,519	1,470	2,015	15,986
ELK BASIN—													
Daily average	943	1,085	1,057	1,104	1 121	1,166	1,095	977	983	994	950	873	
Month	29,256	31,486	32,767	33,120	34,751	34,980	33,945	30,287	29,490	30,814	28,500	27,063	376,459
FERRIS—													
Daily average	61	76	92	87	79	57	67	.....	66	19	21	20	
Month	1,886	2,209	2,852	2,610	2,449	1,710	2,077	.....	1,980	589	630	620	19,812
GRASS CREEK—													
Daily average	2,402	2,469	2,391	2,550	2,491	2,533	2,453	2,350	2,233	2,231	2,251	2,322	
Month	74,454	71,631	74,121	76,500	77,221	75,990	76,043	72,850	66,990	69,161	67,530	71,982	874,473
GREYBULL—													
Daily average	6	17	17	20	20	16	13	12	.....	11	.....	10	
Month	176	503	527	600	620	480	403	372	.....	341	.....	310	4,532
HAMILTON—													
Daily average	735	1,281	1,195	1,220	1 201	1,208	1,220	1,220	.....	101	722	578	
Month	22,785	37,167	37,045	36,600	37,231	36,240	37,820	37,820	.....	3,131	21,660	17,914	325,417
LA BARGE—													
Daily average	965	1,272	796	844	862	790	642	623	1,791	1,859	2,552	2,120	
Month	29,922	36,906	24,676	25,320	26,722	23,700	19,902	19,313	53,730	57,629	76,560	65,720	460,100
LANCE CREEK—													
Daily average	588	641	712	733	706	621	512	514	627	401	357	333	
Month	18,244	18,630	22,072	21,990	21,886	18,630	15,872	15,934	18,810	12,431	10,710	10,323	205,533
LOST SOLDIER—													
Daily average	2,964	3,528	3,868	5,214	4,667	4,259	4,231	4,114	3,896	3,736	3,753	3,649	
Month	91,913	102,315	119,908	156,420	144,677	127,770	131,192	127,534	116,880	115,816	112,590	113,119	1,460,134
OSAGE—													
Daily average	377	390	369	383	366	331	303	511	423	485	449	484	
Month	11,694	11,304	11,439	11,490	11,346	9,930	9,393	15,841	12,690	15,035	13,470	15,004	143,636
PILOT BUTTE—					670								
Daily average	.....	.....	.....	.....	20,770	.....	.....	.....	.....	.....	.....	.....	
Month	.....	.....	.....	.....		.....	.....	.....	.....	.....	.....	.....	20,770
OREGON BASIN—													
Daily average	.....	509	837	844	858	1,010	1,567	4,361	3,938	5,542	3,595	3,171	
Month	.....	14,761	25,947	25,320	26,598	30,300	48,577	135,191	118,140	171,802	107,850	98,301	802,787
REX LAKE—													
Daily average	.....	.....	.....	.....	.....	.....	25	.....	.....	168	159	153	
Month	.....	.....	.....	.....	.....	.....	775	.....	.....	5,208	4,770	4,743	15,496
MULE CREEK—													
Daily average	.....	.....	.....	.....	.....	.....	1,007	815	619	628	564	533	
Month	.....	.....	.....	.....	.....	.....	31,217	25,265	18,570	19,468	16,920	16,523	127,963
LANDER—													
Daily average	697	674	614	621	413	463	453	427	422	327	543	510	
Month	21,629	19,555	19,034	18,630	12,817	13,982	14,043	13,237	12,660	10,137	16,290	15,810	187,824
ALKALI BUTTE—													
Daily average	.....	.....	.....	.....	.....	.....	.....	.....	138	26	.....	25	
Month	.....	.....	.....	.....	.....	.....	.....	.....	4,140	806	.....	775	5,721
ANT HILLS—													
Daily average	.....	.....	.....	.....	.....	.....	.....	.....	13	49	.....	.....	
Month	.....	.....	.....	.....	.....	.....	.....	.....	390	1,519	.....	.....	1,909
TEAPOT DOME—													
Daily average	.....	.....	.....	.....	.....	.....	.....	.....	89	33	41	.....	
Month	.....	.....	.....	.....	.....	.....	.....	.....	2,670	1,023	1,230	.....	4,923
POISON SPIDER—													
Daily average	115	202	176	295	1,944	1,867	1,852	1,525	811	939	1,005	666	
Month	3,587	5,839	5,456	8,850	60,264	56,010	57,412	47,275	24,330	29,109	30,150	20,646	348,928
ROCK CREEK—													
Daily average	2,416	2,482	2,489	2,511	2,549	2,085	2,737	2,775	2,604	2,532	2,576	2,287	
Month	74,910	71,990	77,159	75,330	79,019	62,550	84,847	86,025	78,120	78,492	77,280	70,897	916,619
SALT CREEK—													
Daily average	41,647	37,691	37,893	39,125	40,772	41,911	38,711	38,499	38,200	38,940	36,412	31,430	
Month	1,291,061	1,093,046	1,174,683	1,173,750	1,263,918	1,257,328	1,200,041	1,193,469	1,146,000	1,207,140	1,092,360	974,020	14,006,815
SIMPSON RIDGE—													
Daily average	34	41	50	45	50	55	56	75	65	112	81	100	
Month	1,049	1,200	1,550	1,350	1,550	1,650	1,736	2,325	1,950	3,472	2,430	3,100	23,362
Daily average	56,661	55,118	55,319	58,284	61,578	61,147	59,764	61,596	59,730	61,787	58,766	51,909	58,473
Total 1928	1,756,505	1,598,602	1,714,889	1,748,520	1,908,918	1,834,410	1,852,684	1,909,476	1,791,900	1,915,397	1,762,980	1,609,179	21,403,460
Total 1927	1,870,727	1,678,180	1,840,439	1,838,070	1,896,301	1,852,920	1,898,626	1,688,725	1,577,700	1,550,620	1,563,210	1,728,157	20,983,675

County, a black oil structure opened up in the Embar and Tensleep horizons in the previous year by the Ohio Oil Co., was the scene of considerable drilling the first half of the year, but during the latter part there was a decrease in the number of operations. This was due to the developing of production in excess of what the market could absorb and a decision among most of the operators to restrict drilling and prorate runs. An effort was made to bring about an agreement among all of the operators, but one concern was not disposed to join in this movement and the small area in which it operated was eliminated from the restrictive policy. In April, 1928, the Ohio Oil Co. brought in its No. 1 Batson, NE cor. Section 6-50-100, on the south dome, proving that structure, and wells drilled between the two domes proved the existence of a small neck connecting the two which was productive. There were 21 wells completed on the two structures during the year with an initial production of 12,610 bbls. The wells average between 500 to 600 bbls. each. Approximately 7,500 bbls. of production is shut in. The Texas Company is building a refinery at Cody which will be ready for operation early in 1929. This refinery will run Oregon Basin crude. The largest completion made 2,400 bbls. initial. The productive area of the two domes has not yet been fully determined, but looks as if it will extend 7 to 8 miles in a north-south line and 2 to 4 miles wide except for the small strip connecting the two.

Opening of Frannie Dome

One of the new pools discovered during the year was the Frannie Dome in Park County, the discovery well being the Rosenberg, and others' No. 1, NW NW Section 25-58-98, which found black oil production in the top of the Embar at a total depth of 2,600 feet. The well averaged 350 bbls. a day for the first week, the oil being black and of 28 gravity with 23 per cent gasoline content. Shortly after the discovery the Midwest Refining Co. made a deal to take over the Rosenberg holdings and at the end of the year two additional wells were being started.

The North Sunshine structure in Park County was brought in for a small production of black oil in the Union Oil Co. of California's No. 1 Taylor, NE NW Section 22-47-100, the well making 21 bbls. initial, from a total depth of 3,780 feet, the oil being a heavy black grade. This operation passed to the Continental Oil Co. on January 1, 1929.

Alkali Butte a Real Find

Probably the most important discovery of the year was in the Texas Production Co.'s No. 1, SE NW Section 1-33-95, on the Alkali Butte Dome in Fremont County, the well making around 600 bbls. of light oil initial from the Dakota at a total depth of 4,240 feet. It was deepened to the Morrison and plugged back to 4,175 feet and put on production. This was the only well drilled on the structure.

In this same district the Producers & Refiners Corp. opened a new gas pool in its No. 1, SE SE Section 34-34-92, on the Muskrat Dome, the well making 75,000,000 feet of gas with a rock pressure of 1,300 pounds from the Dakota at a total depth of 4,312 feet. The well has been shut in, but an effort may be made to drill it deeper in search of oil in the lower Dakota, or another test drilled with that object in view.

Another pool, apparently a small one and also a black oil producer, was discovered in Natrona County, southwest of Casper, on the Spindletop Dome. The discovery was drilled by the Spindletop Syndicate in the SE SE Section 32-30-81, and was completed in the Sundance at 1,071 feet, with an initial production of 100 bbls. Two other wells were completed for 50 and 75 bbls.

Grass Creek Extended

An important extension of the productive area of the Grass Creek Field in Hot Springs County in the Embar-Tensleep series was made by the Ohio Oil Co.'s No. 1 Washakie, SW cor. Section 17-46-98, at a total depth of 4,675 feet, the well making 100 bbls. initial. The well was 1,500 feet out from the nearest producer and on a contour that proved up about 1,000 acres. The oil from that horizon is heavy black grade and the well was shut in, only the light oil from upper horizons being produced in this field.

Ant Hills Extension

The Ant Hills structure in Niobrara County, on which the Buck Creek Oil Co. made a discovery in 1927, was extended one-fourth of a mile to the east in the same company's No. 1 Hattie Peterson, NW cor. Section 30-37-62. The discovery made 150 to 200 bbls. per day at a total depth of 4,175 feet after plugging back and the test drilled this year did about the same from that horizon, but has not been completed and is shut down for the winter at 4,257 feet.

Hiawatha Gas Field

The Hiawatha gas field, which straddles the boundary between Moffat County, Colorado, and Sweetwater County, Wyoming, was extended to the Wyoming side during the year by the Ohio Oil Co.'s No. 1 Wilson, SE cor. Section 24-12-100, completed at 2,240 feet with an open flow of 44,000,000 feet. The gas will be held in reserve for the pipe line to be built into Utah the coming spring, and the Ohio is in the meantime testing lower horizons for oil on the Colorado side. During the year the Ohio company acquired substantial additional acreage on this structure, which gives evidence of being a large gas reserve with oil possibilities in the lower horizons, the structure being in the Tertiary.

In the La Barge district in southwestern Wyoming, the California Petroleum Co., which was taken over by The Texas Company, is the principal operator. Twenty-four producers were completed in this field by the various companies during the year, the average well making 50 to 75 bbls. a day. While a number of wildcats were drilled in that district no important discoveries were made. One deep test drilled in the NW cor. SE Section 34-27-113 went to 4,870 feet without finding anything in the lower horizons.

Abandoned Wildcats

Among the structural tests drilled which were abandoned during the year were the California Exploration Co.'s No. 1-A Section 29-48-103, on the Fourbear structure in Park County, abandoned dry at 3,765 feet; Buck Creek Oil Co.'s No. 1 Denning, SE NW Section 4-36-62, on the Cow Gulch structure in Niobrara County, abandoned at 2,907 feet in the lower Pennsylvanian; the Kinney-Coastal Oil Co.'s No. 1, SE SE Section 4-29-81, Bolton Creek Dome in Natrona County, test to lower horizons abandoned in the top of the Tensleep at 2,867 feet; the Shoshone Consolidated Oil Co.'s No. 1, SW NE Section 4-30-81, Bates Park Dome, Natrona County, abandoned below 2,000 feet in the Tensleep; Foreman Oil Co.'s No. 1 Lingle, NW cor. Section 24-26-62, Goshen Hole Dome, Goshen County, abandoned at 5,040 feet; Producers & Refiners Corp.'s No. 19, NW SE Section 25-26-87, test to Pennsylvanian on the Ferris Dome in Carbon County, drilled to 4,600 feet and plugged back to

Colorado

Daily Average and Monthly Production in 1928

	January (bbls.)	February (bbls.)	March (bbls.)	April (bbls.)	May (bbls.)	June (bbls.)	July (bbls.)	August (bbls.)	September (bbls.)	October (bbls.)	November (bbls.)	December (bbls.)	Total (bbls.)
CRAIG—													
Daily average	1,183	1,125	1,527	1,516	1,404	1,035	1,133	1,261	1,111	1,271	1,232	1,068	
Month	36,684	32,611	47,337	45,480	43,524	31,050	35,123	39,091	33,330	39,401	36,960	33,108	453,699
FORT COLLINS—													
Daily average	3,245	3,371	3,436	2,915	2,739	2,569	2,585	2,601	2,512	3,494	2,399	2,156	
Month	100,610	97,770	107,353	87,450	84,909	77,070	80,135	80,631	75,360	108,314	71,970	66,836	1,038,408
FLORENCE—													
Daily average	920	1,173	1,194	1,206	1,331	1,089	1,202	1,059	1,129	1,171	1,233	1,230	
Month	28,527	33,982	37,014	36,180	41,261	32,670	37,262	32,829	33,870	36,301	36,990	38,130	425,016
ILES—													
Daily average	1,613	1,794	1,626	572	467	1,842	2,506	1,937	1,573	1,899	1,845	1,749	
Month	50,017	52,045	50,406	17,160	14,477	55,260	77,686	60,047	47,190	58,869	55,350	54,219	592,726
TOW CREEK—													
Daily average	478	430	433	453	527	638	604	544	491	496	511	501	
Month	14,809	12,479	13,423	13,590	16,337	19,140	18,724	16,864	14,730	15,376	15,330	15,531	186,333
WALDEN—													
Daily average	4	3	.....	.....	.....	.....	.....	41	27	.....	.....	.....	
Month	113	113	.....	.....	.....	.....	.....	1,271	810	.....	.....	.....	2,307
RANGELY (Estimated)—													
Daily average	100	100	105	100	100	100	100	100	95	100	100	100	
Month	3,100	2,900	3,255	3,000	3,100	3,000	3,100	3,100	2,850	3,100	3,000	3,100	36,605
BOULDER (Estimated)—													
Daily average	25	25	25	25	25	25	25	25	23	25	25	25	
Month	775	725	775	750	775	750	775	775	690	775	750	775	9,090
Daily average	7,567	8,021	8,373	6,787	6,593	7,298	8,155	7,568	6,961	8,456	7,345	6,829	7,498
Total 1928	234,635	232,625	259,563	203,610	204,383	218,940	252,805	234,608	208,830	262,136	220,350	211,699	2,744,184
Total 1927	215,016	223,356	242,947	274,620	239,165	217,200	233,926	226,021	204,150	220,596	220,050	205,623	2,722,670
Total 1926	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	1,934,200

New Mexico

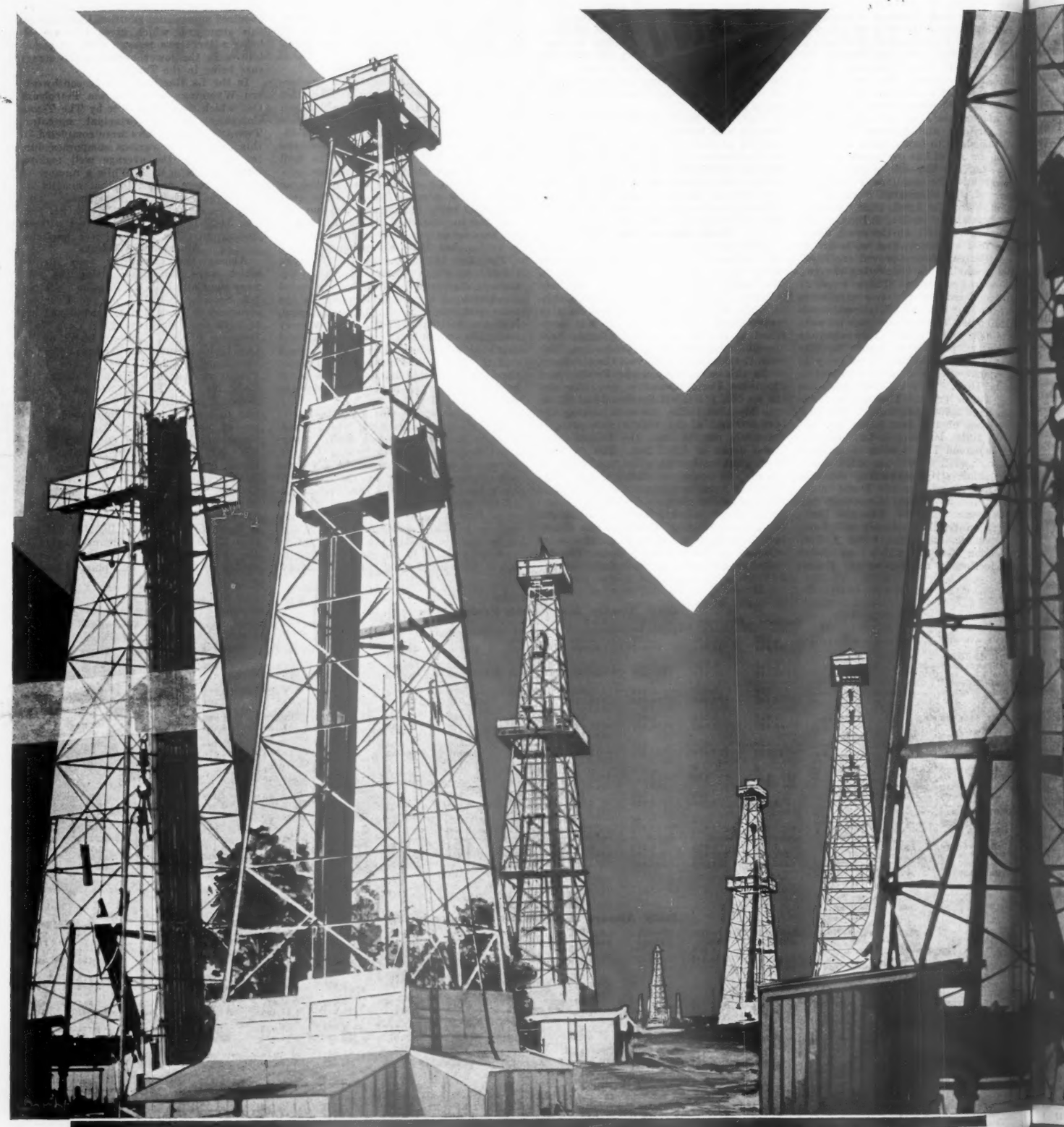
Daily Average and Monthly Production in 1928

	January (bbls.)	February (bbls.)	March (bbls.)	April (bbls.)	May (bbls.)	June (bbls.)	July (bbls.)	August (bbls.)	September (bbls.)	October (bbls.)	November (bbls.)	December (bbls.)	Total (bbls.)
ARTESIA—													
Daily average	1,364	1,332	1,232	1,143	1,222	1,132	1,152	1,063	954	1,042	1,018	1,071	
Month	42,306	38,642	38,223	34,290	37,882	33,960	35,712	32,953	28,620	32,302	30,540	33,201	418,631
MALJAMAR (OR CAP ROCK)—													
Daily average	.....	.....	205	185	203	199	203	189	155	200	179	118	
Month	.....	.....	6,355	5,550	6,293	5,970	6,293	5,859	4,650	6,200	5,370	2,658	56,198
HOG BACK—													
Daily average	649	470	516	511	488	150	204	427	515	480	500	511	
Month	20,108	13,621	15,996	15,330	15,128	4,500	6,324	13,237	15,450	14,880	15,000	15,841	165,415
RATTLESNAKE—													
Daily average	245	90	135	313	374	335	667	1,056	1,097	1,053	1,144	1,774	
Month	7,601	2,617	4,185	9,390	11,594	10,050	20,677	32,736	32,910	32,643	34,320	54,994	253,717
TABLE MESA—													
Daily average	156	176	148	120	83	146	15	141	140	78	137	140	
Month	4,850	5,101	4,588	3,600	2,573	4,380	466	4,371	4,200	2,418	4,110	4,340	44,996
LEA AND EDDY—MISCELLANEOUS—													
Daily average	.....	.....	.....	.....	.....	.....	.....	.....	300	286	292	268	
Month	.....	.....	.....	.....	.....	.....	.....	.....	9,000	8,866	8,760	8,308	34,934
Daily average	2,414	2,068	2,237	2,272	2,370	1,962	2,241	2,876	3,161	3,139	3,270	3,882	2,661
Total 1928	74,865	59,981	69,347	68,160	73,470	58,860	69,471	89,156	94,830	97,309	98,100	120,342	973,881
Total 1927	136,679	138,460	148,738	142,140	112,530	102,120	89,200	76,911	73,500	58,652	71,910	63,364	1,214,284
Difference	61,814	78,479	79,391	73,980	39,060	43,260	19,729	12,245	21,330	38,657	26,190	56,978	240,403

Montana

Daily Average and Monthly Production in 1928

	January (bbls.)	February (bbls.)	March (bbls.)	April (bbls.)	May (bbls.)	June (bbls.)	July (bbls.)	August (bbls.)	September (bbls.)	October (bbls.)	November (bbls.)	December (bbls.)	Total (bbls.)
CAT CREEK—													
Daily average	1,702	1,759	1,764	1,782	1,745	1,747	1,702	1,631	1,573	1,490	1,527	1,520	
Month	52,809	51,004	54,684	53,460	54,095	52,410	52,762	50,561	47,190	46,190	45,810	47,120	608,095
KEVIN SUNBURST—													
Daily average	9,846	9,796	9,645	9,747	9,020	8,550	8,414	8,855	9,541	7,493	6,629	7,742	
Month	305,230	284,095	298,995	292,410	279,620	256,500	260,834	274,505	286,230	232,283	198,870	240,002	3,209,574
PONDERA—													
Daily average	.....	.....	.....	.....	.....	.....	.....	.....	.....	487	1,810	1,888	
Month	.....	.....	.....	.....	.....	.....	.....	.....	.....	15,097	54,300	58,528	127,925
LAKE BASIN—													
Daily average	173	157	143	155	147	145	130	114	115	110	282	70	
Month	5,331	4,580	4,433	4,650	4,557	4,350	4,030	3,534	3,450	3,410	8,460	2,170	52,955
Daily average	11,721	11,712	11,552	11,684	10,912	10,442	10,246	10,600	11,229	9,580	10,248	11,220	10,925
Total 1928	363,370	339,679	358,112	350,520	338,272	313,260	317,626	328,600	336,870	296,980	307,440	347,820	3,998,549
Total 1927	426,498	399,868	452,600	417,000	434,155	462,330	456,847	497,364	413,380	423,947	379,560	403,434	5,171,883
Total 1926	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	7,744,605



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4,535 feet, where it had an initial production of 125 bbls.; Union Oil Co. of California's No. 1 Bath, Section 33-17-75, Little Laramie Dome, in Albany County, abandoned at 2,275 feet.

WYOMING
Summary of Wells Completed in 1928

District or county—	Comp.	Prod.	Dry	Gas
Salt Creek	47	10,941	3	0
Albany	1	0	1	0
Big Horn	9	54	5	1
Carbon	8	253	2	3
Converse	2	150	0	0
Crook	1	0	1	0
Fremont	7	400	3	2
Goshen	1	0	1	0
Hot Springs	4	100	3	0
Johnson	3	0	3	0
Lincoln	2	0	2	0
Natrona (Ex. Salt Cr.)	13	745	4	2
Niobrara	8	300	5	1
Park	32	11,866	4	1
Platte	1	0	1	0
Sweetwater	5	0	3	2
Sublet	47	1,419	18	2
Uinta	6	730	3	0
Washakie	2	0	2	0
Weston	4	85	1	0
Total 1928	203	27,043	65	14

Completions by Months

Month—	Comp.	Prod.	Dry	Gas
January	9	424	1	1
February	39	628	27	1
March	10	1,580	1	0
April	9	802	1	0
May	10	1,060	5	0
June	28	3,092	12	2
July	18	4,228	2	0
August	12	1,185	3	1
September	14	5,579	0	1
October	20	3,444	6	3
November	17	3,869	5	1
December	17	1,152	4	4
Total 1928	203	27,043	65	14
Total 1927	339	133,804	52	19
Difference	136	105,761	13	5

Colorado

One new oil and gas pool was discovered in Colorado in 1928; 13 structural tests were abandoned; the productive area of three pools was extended; and deeper horizons were found productive in another. The number of wells completed in the State during 1928 was 130, compared with 140 in 1927. Of the 130 completions in 1928, there were 58 producers, 2 gas wells and 70 dry and abandoned, as compared with 56 producers, 7 gas wells and 77 dry and abandoned in 1927. The aggregate depth of all wells completed or abandoned in 1928 was 347,831 feet, an average of 2,676 feet per well, compared with an aggregate of 350,992 feet, an average of 2,507 per well, in 1927. Fifty-five per cent of all completions in the State in 1928 was in the Florence-Canon City district in Fremont County, and 75 per cent, or 260,098 feet, of the total footage drilled in completed wells was in that same area. The average depth of the Fremont County wells was 3,612 feet.

The new pool discovered was the South McCallum Dome in Jackson County, just south of the Wyoming line, on which the Continental Oil Co.'s No. 1 Hoye, Section 34-9n-78, topped the Muddy sand of the Dakota series in March at 4,875 feet with an estimated flow of 16,000,000 feet of gas and some very high gravity oil. The gas contained a large per cent of carbon dioxide and came from the well at a low temperature. Conditions were very similar to those on the North McCallum Dome opened up in the preceding year, and at the present time the well has not been drilled to the lower horizons where it is hoped to escape the peculiar gas and find a better oil-producing horizon. The similarity between the production on this dome and the one immediately to the north opens the probability that both are connected and are one structure, in which event it will prove to be a major development should the deeper horizons come up to expectations. The development of the present horizon is a very difficult task on account of the expansion of the gas and the extremely low temperature which freezes up everything with which it comes into contact.

The Canon City Pool in Fremont County, the west extension of the old Florence Pool, which centered in and around Section 35-18-70, was extended farther to the south and west and the principal drilling was in Section 3-19-70 and adjoining sections. The oil comes from the shale the same as in the Florence Pool, and the area is spotted and fairly well drilled up. Altogether 72 wells were completed in Fremont County, of which 39 were producers and 33 were failures. One test to the Dakota was drilled in NW NW Section 3-19-70, and found water at 4,565 feet. No sand production has ever been found in this district, though it has produced more than 13,000,000 bbls. of oil.

Six wells were drilled during the year by the Union Oil Co. of California on the Wellington Dome in Larimer County, one of which was an old producer deepened to lower horizons. The same company completed two wells on the south, or Fort Collins Dome, both of which were producers. The wells on the Wellington Dome were all producers except the deep test which was drilled to 5,112 feet and supposedly tested the lower Dakota. The Wellington Dome's productive area was extended one-fourth mile to the north by completion of No. 2 Foster, NE SW Section 30-10n-68 at 4,500 feet with initial production of 145 bbls. Late in December the Continental Oil Co. purchased both of these operations and will take over same as of January 1, 1929. The pools have neither been drilled to or operated at capacity due to the low price of oil.

Shut-In Production

Drilling on the Iles Dome in Moffat County continued on a comparatively small scale during the year, these wells being mostly required offsets and tests to determine the productive area. There were 10 wells completed or abandoned, of which 1 was not a test, 5 were producers and 4 were failures. This pool has a shut-in production of 6,000 bbls. per day and there is no desire to increase the output at this time. The productive area was extended one-fourth of a mile to the south in the Midwest Refining Co.'s No. 4-SD Shaw, NW NE Section 27-4n-92, which was first completed as a big well in the Morrison at 3,280 feet, but which developed water and was drilled on down to the Sundance, where it came in as a good well. It is probable that 700 to 800 acres comprises the productive area of the pool, though this has not yet been determined. Some of the failures appear to have been in fault blocks and further drilling will be necessary before the limits of the pool are definitely known. The wells which were abandoned and which may define the limits were the Texas Production Co.'s No. 17 State, NW SE Section 15-4n-92, abandoned at 3,904 feet; same company's No. 6 Parkinson, NW cor. Section 23-4-92, abandoned at 3,905 feet; Shaffer Oil & Refining Co.'s No. 205 Yarg, NW NW Section 26-4-92, abandoned 200 feet in the Sundance at 4,166 feet; and Alliance Oil Co.'s No. 1 Milliken, SW cor. Section 14-4-92, abandoned at 3,775 feet. One of the wells on the top of the dome made 188 bbls. per hour initial before being choked down.

Deep Test on Moffat Dome

On the Moffat Dome, 5 miles to the northeast of the Iles structure, the Texas Production Co. completed its No. 10 Knowlton, Section 33-5-91, in the Sundance sand at a total depth of 4,486 feet. At one time it produced as high as 800 bbls. in a day, part from the Morrison and part from the Sundance. This is the only test on the dome drilled below the Dakota from which all production has come in the past. The discovery in the lower horizons really is credited to last year, though the well was not completed until the summer of 1928. The test, however, does not entirely satisfy the operators as to the possibilities of the lower horizon and a deep test is now drilling with a rotary rig so that the Morrison and Sundance sands may be fully explored and tested. The Texas Production Co. is the sole operator on the structure and there has been no need for a rapid development of the new horizons.

The Texas Production Co., the principal operator on the Tow Creek Dome in Routt County, completed five producers from the shale in 1928, sufficient to maintain production at about the same level during the entire year. Several old wells were deepened in the shale and found new production in the lower horizons. There is no sand production in this pool, the Dakota being water-bearing, but the Texas company was drilling a test to the Morrison and Sundance sands at the close of the year. These horizons, which lie below the Dakota and are productive at Iles, 5 miles to the southwest, have never been tested at Tow Creek.

Structural tests drilled to completion in 1928 and which failed to open any new pools, included the following: Kinney-Coastal Oil Co.'s No. 1 Pinos, SE Section 24-26s-68, Escondido Dome, in Huerfano County, abandoned at 2,172 feet in granite; Charles F. Woods and others No. 1 Knowles, SE cor. NW Section 30-3s-69, Table Mountain structure in Jefferson County, abandoned at 3,003 feet after testing the Laramie and Fox Hills, but which did not go to the Dakota; Raddatz, Vogel & Travis' No. 1-A Abrams, SW SE Section 1-4n-69, North Berthoud Dome in Larimer County, abandoned at 1,975 feet after testing the Hygiene; Phillips Petroleum Co.'s No. 1 Haskins, NE NE Section 23-20s-56, Red Rock structure, in Las Animas County, drilled to 2,575 feet; Parker Club, Inc., No. 1 Adams, NE SW Section 32-34s-56, Branson Dome, Las Animas County, abandoned at 3,873 feet in granite; the Northeastern Colorado Oil Co.'s No. 1 State, SW cor. Section 36-8n-55, on the Willard Dome, in Logan County, abandoned at 5,612 feet after testing the Dakota series; the Coon-Cotton Syndicate's No. 1 Hall, SW NW Section 9-35-13, Mancos Dome, in Montezuma County, abandoned at 1,464 feet after testing the Dakota sands; the Indian Petroleum Co.'s No. 1 Gilmore, NW Section 4-45n-16w, Paradox structure, Montrose County, abandoned at 1,464 feet after testing the Dakota sands; the Indian Petroleum Co.'s No. 1 Gilmore, NW Section 4-45n-16w, Paradox structure, Montrose County, abandoned at 5,185 feet, probably in the Pennsylvanian; the Union Oil Co. of California's No. 1 U. S. Consolidated, NW SE Section 10-2n-88, Poose Creek Dome, in Rio Blanco County, abandoned at 1,017 feet after testing the Sundance; the Texas Production Co.'s No. 1 Freeman, NW SE Section 27-3n-94, Wilson Creek Dome, Rio Blanco County, abandoned at 5,913 feet after testing Dakota and Lakota sands; and two wells on the Rangely Dome in Rio Blanco County, one drilled by the Associated-Tidewater Oil Co. on SE cor. Section 24-2n-103, to 4,800 feet, which tested the Sundance, and the Midwest Refining Co.'s No. 2, SE SE Section 30-2n-102, abandoned at 3,472 feet. The Rangely structure is not, however, entirely condemned by these tests as there are several large gas wells on the structure in the Dakota, and some shallow production, and further testing of the dome is probable. Another structural test was the Marland Oil Co.'s No. 1, SE NE Section 8-30s-50, on the Table Mesa structure in Baca County, abandoned at 2,085 feet in syenite. The several tests drilled in 1927 on the Parallel Dome in Boulder County also were abandoned in 1928, the deepest being the Repollo Oil Co.'s No. 1 Nichols, Section 32-1n-70, which was drilled to the Dakota and abandoned at 6,145 feet.

COLORADO
Summary of Wells Completed in 1928

County—	Comp.	Prod.	Dry	Gas
Adams	2	0	1	0
Baca	1	0	1	0
Boulder	5	0	5	0
Custer	1	0	1	0
Fremont	74	3,756	33	0
Huerfano	1	0	1	0
Jefferson	1	0	1	0
La Plata	2	0	2	0
Las Animas	3	0	3	0
Larimer	13	2,309	4	1
Logan	1	0	1	0
Mesa	1	0	1	0
Moffat	17	7,053	7	0
Montrose	1	0	1	0
Montezuma	1	0	1	0
Otero	1	0	1	0
Rio Blanco	4	0	4	0
Routt	9	667	0	0
Saguache	1	0	1	0
Weld	1	0	1	0
Total 1928	140	13,785	70	1
Total 1927	120	13,040	53	6
Difference	20	745	17	6

Completions by Months

Month—	Comp.	Prod.	Dry	Gas
January	10	663	2	1
February	8	2,585	2	0
March	11	1,604	6	0
April	14	515	10	0
May	15	832	5	0
June	10	375	6	0
July	20	1,030	13	0
August	8	1,490	2	0
September	6	960	4	0
October	18	2,616	8	0
November	9	903	3	0
December	11	263	7	0
Total 1928	140	13,785	70	1

New Mexico

Drilling operations in New Mexico in 1928 were confined almost exclusively to wildcats exploring for new pools, the

(Continued on Page 270)

POOL OPENED IN PENNSYLVANIA; ANOTHER IN OHIO IS DEVELOPED

By D. S. Wakenight
Staff Correspondent, Eastern Fields

Few important discoveries were made in the Southwest Pennsylvania, Southeast Ohio and West Virginia fields during the past year. The outstanding feature of the year was the advance in the credit balance for crude of the Pennsylvania Grade. It was a substantial increase and far reaching in its benefit to producers, large and small. Using the market price for crude of the Pennsylvania Grade as a basis for the posted quotations, in the National Transit and Southwest Pennsylvania lines, on the first of the year and subsequent quotations follow:

January 1	$2.65
June 13	2.90
July 9	3.10
September 13	3.25
October 13	3.35
November 9	3.50
December 14	3.75

It will be seen by the above that the advance was continuous throughout the year, and at the close of the year was $1.10 higher than at the beginning of the year. As compared with the quotation at the first of the year the close represented an advance of 41.53 per cent.

It should be remembered, however, that the price quoted for Pennsylvania Grade crude in the New York Transit line and the National Transit lines, Bradford district, was 10 cents a barrel higher than in the Southwest Pennsylvania lines. The same grade in the Eureka Pipe Lines was 10 cents lower and that in the Buckeye Pipe Lines, Macksburg division, was 15 cents lower than in the Southwest lines.

Coming as it did after the longest depression in the history of the industry, producers and operators have reason for taking a more optimistic view of the business. The price for high grade crude, having now reached a point where it will be profitable to drill for light pumpers they can now return to the old fields and drill where there is room for additional wells. Both West Virginia and southeastern Ohio contain a lot of this kind of territory.

Field Developments

There were very few important discoveries in the Eastern fields during the year. No new pools of appreciable size were discovered. In the deep sand territory in Harrison Township, Perry County, Ohio, a discovery of the previous year was the most active. It was practically a town lot development and despite the fact that many of the wells had a high initial production they declined rapidly, many more wells having been drilled than was necessary to recover all of the oil. However, it stimulated production and brought the aggregate production of the three divisions up to almost 500,000 bbls. more than the previous year. Muskingum, Licking, Coshocton, Hocking and Holmes Counties has an occasional good producer.

The shallow sand districts in Southeast Ohio completed no large wells and the average initial production was very small. During the early part of the year the market was so low that even operators in the shallow territory declined to push development work. At the close of the year owing to the advance in the market, some districts showed increased activity. The year closed without hav-

(Continued on Page 276)

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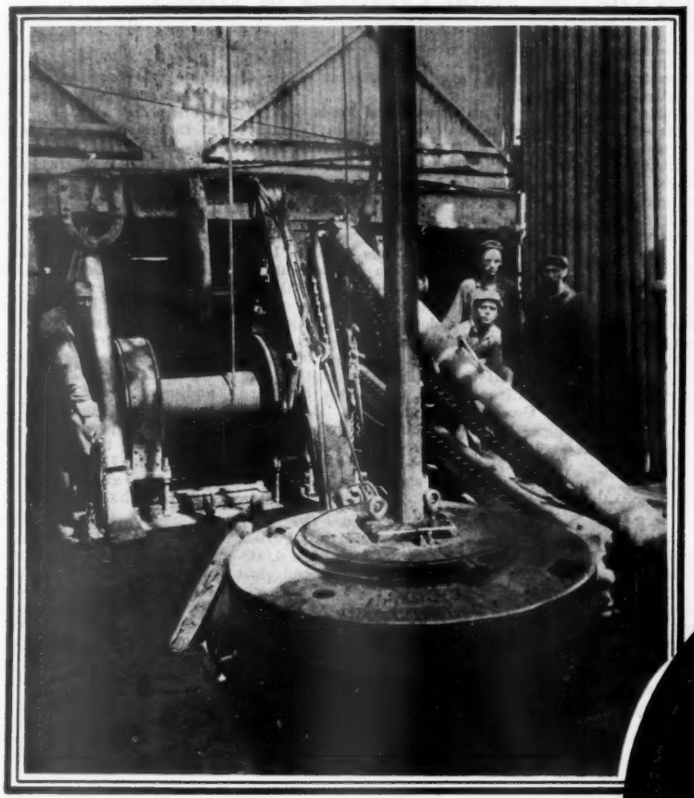

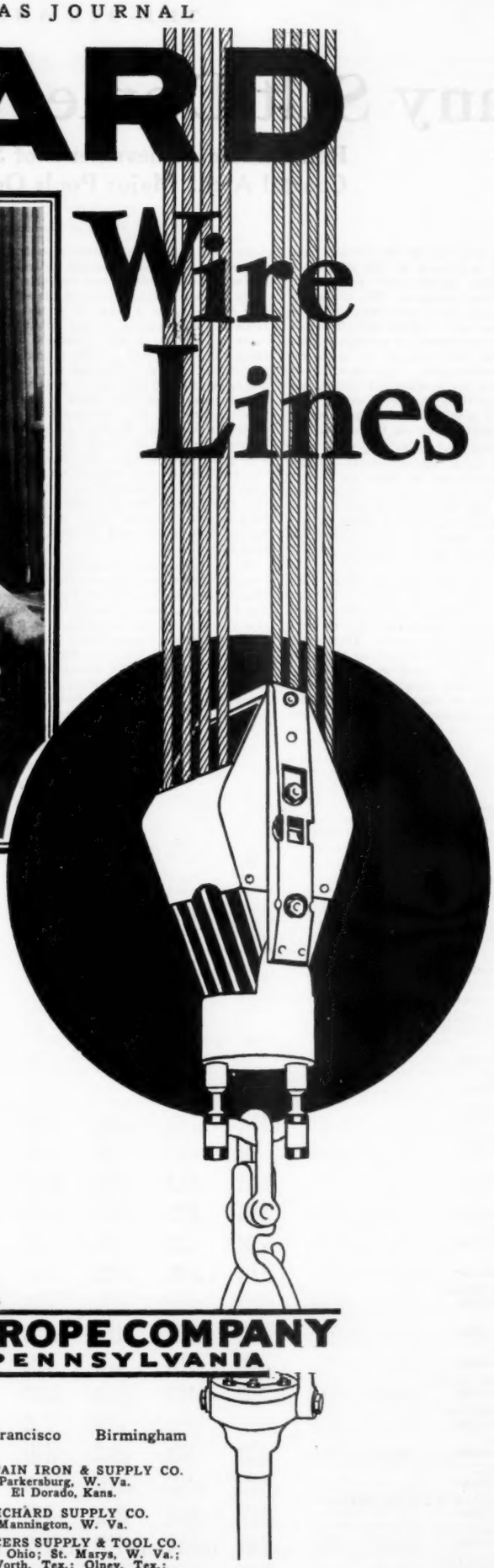

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Many Salt Domes Discovered in 1928

Remarkable Achievements of Scientific Instruments in the Gulf Coastal Area. Major Pools Opened, Good Prospects of Others

By Neil Williams,
Staff Correspondent, Gulf Coast Fields

The past year on the Gulf Coast was featured by a display of the results of the intensive geophysical exploration which has been going on. The discovery of 33 new salt dome prospects, or more than half the total number of salt domes found since the advent of geophysical instruments in 1924, stands out as a remarkable achievement. The opening of production on six geophysical domes, not including one long-prospected dome, is a record which speaks well for the modern, systematic wildcatting on the coast.

These accomplishments, together with the proving up of major coastal production on at least one of these six domes, as well as on three domes, on which first production had been found previous to this year, and in one field which is not a salt dome, made the year one of the most important in the history of the Coast.

Despite the discovery of these new fields and the record number of salt domes, each of which is a potential new source of coastal production, the element of sensationalism was absent. Drilling in all the new dome fields and for the most part on the older domes was carried on conservatively and apparently in routine fashion. This is characteristic of modern coastal operations, in which the new domes and fields are generally controlled either by one major company entirely or by two or more jointly and undividedly.

On the other hand during the late summer and autumn, a wave of almost promiscous and reckless leasing swept over certain districts of the Coast in which independents as well as the larger companies had a play. Although most of the domes checked up were fairly well blocked in advance, lease men were kept busy trading around on the outskirts and wherever possible. Rumors of additional domes furnished the basis for considerable protection buying. The easy availability of the torsion balance on a rental plan sent many smaller operators into the field with various propositions to land owners and each "T.B." crew had to be followed by a long retinue of lease hounds.

New fields were Sorrento, Ascension Parish, Louisiana; Bayou Bouillon, St. Martin Parish, Louisiana; DeWalt, Fort Bend County, Texas; Gay Hill, Washington County, Texas; Fannette, Jefferson County, Texas; Long Point, Fort Bend County, Texas; Raccoon Bend, Austin County, Texas, and Old Hackberry Dome, Cameron Parish, Louisiana. At Fannette and Long Point, the discovery wells have quit after short lives, and at present there is no production at either of these domes.

Two Short-Lived Pools

Sorrento was opened late in February, the first field east of the Mississippi River, when the Gulf Refining Co. brought in its No. 4 United Land Co., flowing between 3,000 and 4,000 bbls. daily initially. Subsequent drilling has yielded three additional producers with initial flows ranging from 1,000 to 1,500 bbls. daily. Production at Sorrento is from the cap rock between 1,600 and 1,700 feet deep. The output of the field has been held down to approximately 1,000 bbls. daily which is being moved through a small line a distance of a mile and a half to loading racks at the town of McElroy and thence to the Standard Oil Co. refinery at Baton Rouge, 30 miles distant. Although Sorrento so far has not been developed into a major producing field, cap rock fields usually are prolific producers, such as Spindletop and Humble.

The next addition to coastal fields was Bayou Bouillon, St. Martin Parish, opened by Rycade Oil Corp. by a 4,000-bbl. well, the company's second test down. Completions since then have not been entirely successful. Two additional small wells have been brought in but these produced only a short time, although both have been worked over and are expected back in. The field's output at the close of the year was around 600 bbls. daily.

DeWalt Is Important

One of the most important fields opened and one which promises an extensive ultimate yield was DeWalt, Fort Bend County. Opened in March with a 1,000-bbl. well, the field has undergone steady but conservative drilling until now it has a daily average production of better than 6,000 bbls. with all wells pinched in. With 10 tests drilled up to January 1 only 3 were failures. All the acreage, with the exception of three small tracts held by the Gulf Production Co. and another by Shell Petroleum Corp., is held by Humble Oil & Refining Co. Opening of production on this dome was followed by the laying of an 8-inch pipe line by the Humble Pipe Line Co. to the main line at Pierce Junction which is handling the oil from the field.

Raccoon Bend

Humble Oil & Refining Co., jointly with the Valley Oil Corp. (H. T. Staiti interest), also was responsible for the development of Raccoon Bend, Austin County, which at this time promises to become one of the coast's major fields

Gulf Coast

Daily Average and Monthly Production in 1928

Texas Gulf Coast

	January (bbls.)	February (bbls.)	March (bbls.)	April (bbls.)	May (bbls.)	June (bbls.)	July (bbls.)	August (bbls.)	September (bbls.)	October (bbls.)	November (bbls.)	December (bbls.)	Total (bbls.)
ALLEN DOME—													
Daily average	.....	.....	.....	89	155	92	45	89	27	9	7	6	
Month	.....	.....	.....	2,674	4,806	2,766	1,399	2,746	803	289	203	193	15,879
BARBERS HILL—													
Daily average	537	638	727	600	579	576	617	596	614	2,561	1,121	846	
Month	16,650	18,500	22,550	18,000	17,950	17,300	19,112	18,465	18,410	79,380	33,635	26,225	306,177
BATSON—													
Daily average	1,329	1,370	1,420	1,449	1,367	1,410	1,416	1,386	1,380	1,377	1,344	1,306	
Month	41,214	39,735	44,017	43,473	42,374	42,307	43,888	42,988	41,394	42,691	40,328	40,491	504,900
BIG CREEK—													
Daily average	2,022	1,933	1,913	1,505	1,490	1,442	2,885	3,159	3,071	2,518	2,215	2,428	
Month	62,682	56,055	59,304	45,149	46,197	43,261	89,444	97,922	92,137	78,055	66,464	75,278	811,948
BLUE RIDGE—													
Daily average	4,318	4,354	6,408	6,837	8,479	5,582	6,911	8,139	7,844	6,599	5,850	4,743	
Month	133,873	126,261	198,633	205,114	262,856	167,473	214,226	252,324	235,312	204,572	175,514	147,037	2,323,195
BRENHAM—													
Daily average	100	100	99	100	97	150	149	150	148	158	151	150	
Month	3,100	2,900	3,069	3,000	3,000	4,500	4,622	4,650	4,430	4,893	4,516	4,650	47,330
BOLING—													
Daily average	2,069	2,204	2,711	2,176	2,979	2,363	1,728	2,079	1,789	1,726	2,280	2,623	
Month	64,139	63,917	84,052	65,281	92,356	70,917	53,577	64,435	53,677	53,499	68,393	81,317	815,540
DAMON MOUND—													
Daily average	844	830	707	860	902	820	843	723	646	709	663	618	
Month	26,130	24,070	21,915	25,790	27,960	24,610	26,285	22,435	19,390	21,974	19,900	19,158	279,617
DEWALT—													
Daily average	.....	.....	147	284	321	245	267	235	399	1,964	4,201	4,724	
Month	.....	.....	4,550	8,520	9,945	7,350	8,270	7,283	11,969	60,876	126,039	146,442	391,244
FANNETTE—													
Daily average	.....	.....	.....	.....	.....	.....	.....	.....	90	36	21	9	
Month	.....	.....	.....	.....	.....	.....	.....	.....	2,707	1,118	620	266	4,711
GOOSE CREEK—													
Daily average	7,355	7,322	7,269	7,260	7,310	7,130	7,064	6,888	6,687	6,571	6,809	6,573	
Month	228,008	212,336	225,324	217,807	226,617	213,886	218,966	213,537	200,629	203,694	204,257	203,762	2,568,833
HIGH ISLAND—													
Daily average	26	275	268	199	248	484	546	485	552	570	674	2,298	
Month	815	7,975	8,292	5,989	7,696	14,511	16,938	15,122	16,552	17,689	20,211	71,228	202,993
HULL—													
Daily average	11,947	9,312	11,660	11,083	12,245	11,587	10,775	10,582	11,520	12,406	11,394	10,310	
Month	370,353	270,059	361,464	332,485	379,603	347,622	334,030	328,040	345,598	384,588	341,822	319,604	4,115,369
HUMBLE—													
Daily average	3,565	3,324	3,830	3,375	3,443	3,399	3,295	3,420	3,306	3,401	3,462	3,634	
Month	110,524	96,410	118,737	101,240	106,739	101,959	102,142	106,027	99,191	105,422	103,856	112,636	1,263,993
MARKHAM—													
Daily average	200	200	200	226	145	208	267	291	358	352	296	275	
Month	6,200	5,800	6,200	6,775	4,500	6,235	8,270	12,113	10,731	10,900	8,875	8,525	95,124
NASH—													
Daily average	1,478	2,268	2,039	1,745	1,828	1,267	923	1,371	1,084	1,028	987	1,050	
Month	45,824	65,782	63,210	52,365	56,654	38,016	28,622	42,490	32,515	31,875	29,605	32,550	515,508
NORTH DAYTON—													
Daily average	.....	.....	227	199	192	231	2,257	1,398	774	758	688	643	
Month	.....	.....	7,026	5,967	5,933	6,927	69,957	43,340	23,210	23,497	20,640	19,930	226,427
ORANGE—													
Daily average	4,537	4,234	4,305	4,812	3,950	4,209	4,035	3,596	3,607	3,588	3,665	3,359	
Month	140,653	122,781	133,445	144,357	122,432	126,187	125,085	111,466	108,219	111 220	109,956	104,138	1,459,923
ORCHARD—													
Daily average	153	156	72	52	35	19	5	360	301	151	97	76	
Month	4,897	4,516	2,217	1,560	1,090	563	142	11,149	9,023	4,684	2,904	2,355	45,100
PIERCE JUNCTION—													
Daily average	9,326	8,534	10,211	12,244	13,865	11,545	11,321	10,960	9,944	11,154	9,752	11,597	
Month	289,096	247,478	316,553	367,315	429,801	346,345	350,951	339,763	298,313	345,796	292,569	359,515	3,935,484
RACCOON BEND—													
Daily average	.....	.....	45	40	32	35	32	60	1,424	467	693	838	
Month	.....	.....	1,395	1,200	992	1,050	975	1,846	42,710	14,476	20,801	25,972	111,417
SARATOGA—													
Daily average	1,059	1,016	1,057	1,137	1,231	1,180	1,100	1,107	1,044	1,011	986	967	
Month	32,815	29,472	32,770	33,798	38,156	35,414	34,092	34,312	31,340	31,347	29,580	29,979	393,675
SOUR LAKE—													
Daily average	3,587	3,471	3,501	3,420	3,466	3,409	3,423	3,300	3,282	3,181	3,009	3,012	
Month	111,194	100 666	108,542	102,607	107,446	102,184	106,112	102,291	98,449	98,619	90,268	93,371	1,221,749
SOUTH LIBERTY & SOUTH DAYTON—													
Daily average	2,150	2,410	2,923	3,858	3,959	4,041	4,137	3,828	3,588	3,699	5,284	6,078	
Month	66,646	69,888	90,611	115,641	122,739	121,233	129,789	118,682	107,651	114,667	158,531	188,421	1,404,499
SPINDLETOP—													
Daily average	43,302	48,546	37,785	36,913	40,224	41,342	38,865	38,599	39,204	29,857	38,333	37,484	
Month	1,342,366	1,407,828	1,171,347	1,107,533	1,246,949	1,241,284	1,204,802	1,196,595	1,176,128	925,573	1,149,951	1,162,001	14,332,357
WEST COLUMBIA—													
Daily average	8,610	8,166	8,211	8,216	7,992	8,020	8,243	8,252	7,193	7,571	8,023	7,525	
Month	266,896	236,810	254,551	246,483	247,751	240,595	255,529	255,868	$15,785	234,710	240,692	233,279	2,933,940
Daily average	108,519	110,663	107,735	108,671	116,534	110,786	111,201	111,157	109,876	103,422	112,004	113,172	
Month	3,364,075	3,209,239	3,339,774	3,260,123	3,612,542	3,323,595	3,447,215	3,445,879	3,296,273	3,206,103	3,360,130	3,508,333	40,373,371

and possibly one of the largest in area. Unlike other coastal fields, Raccoon Bend, so far as known, is not a salt dome, although the crude compares very favorably with that of salt dome fields.

First production at Raccoon Bend was not discovered during 1928, but it was not until February 1 of that year that a well of any importance was completed. That well, No. 2 Gotosky, came in flowing initially 300 bbls. daily of 21 gravity pipe line oil from sand at 3,282 feet. This production, however, dropped off and in August after it had fallen to as low as 18 bbls. daily, the well unexpectedly increased its flow to around 1,400 bbls. of fluid daily of which 800 bbls. was oil. Shortly after this No. 1 Bracey was brought in flowing 445 bbls. daily to establish Raccoon Bend definitely as a field. No. 3 Gotosky, the following week, came in flowing an estimated 4,000 bbls. daily. Production of this pool, although additional wells have been completed, has been held down to around 800 bbls. daily which is being run through a line recently completed by the Humble Pipe Line Co. to its Satsuma station on its main line.

The importance of Raccoon Bend lies in the fact that production has been extended in a line a distance of over 1½ miles. A good gas sand around 1,000 to 1,200 feet, in addition to a newly discovered sand between 2,200 and 2,300 feet in addition to the deeper sand, offers a wide field for development as occasion demands. The number of land owners is large which fact has forced a fairly active drilling campaign at Raccoon Bend although the acreage is all controlled by the two companies jointly.

Opening of Gay Hill

Sun Oil Co., the latter part of the year, opened new production at its geophysical dome, known as Gay Hill, north of Independence, Washington County. The discovery well, a 600-bbl. producer, was followed a short time later by a 4,000-bbl. well, which gave this dome recognition as another source of prolific coastal production. This field has been shut in pending erection of storage but lately a small line to a loading rack has been completed and further immediate development of this dome is anticipated. Three other rigs now are running and several locations have been made.

Hackberry Dome

First commercial production on the old Hackberry Dome of Cameron Parish, Louisiana, was tapped in December when Cameron Oil Co. and Rycade Oil Corp.'s joint test, No. 2 Duhon, on the south flank, was brought in flowing 300 bbls. daily on an 8-inch choke, the well being estimated as good for 700 bbls. when opened normally.

This dome is not to be confused with the geophysical East Hackberry Dome, 3 miles to the east, on which first production was found November 5, 1927. The rapid development of the East Hackberry Dome to one of the principal fields of southern Louisiana, which has taken place during 1928, has shifted operations from the older Hackberry Dome, on which drilling had been going on for a quarter of a century, unsuccessfully.

East Hackberry's Quick Rise

The East Hackberry Dome, opened late in 1927, rose to prominence during 1928 with daily production figures at times as high as 8,000 bbls. The field was featured by steady extensions and indications point to the possibility that the main pool has not been touched as yet. Late in the year production was extended 1¼ miles due east and a quarter of a mile into Calcasieu Lake by Louisiana Land & Exploration Co. by the best well so far completed at any point at the dome. However, another test on the bank of the lake and between the new wildcat and the nearest previous production, drilled into heaving shale and was abandoned. As the year closed, operations at East Hackberry were at the lowest ebb of any time during the year and interest was shifting to the older Hackberry Dome where four or five new tests are getting under way in the vicinity of the field recently opened.

Production Doubled

The development at Hackberry, together with that on the Sulphur Dome, Calcasieu Parish, and the new production added at Sweet Lake, Cameron Parish, across the lake from Hackberry, was responsible for doubling the total daily average output of South Louisiana. The advance of these fields together with the possibilities of numerous other fields in that part of the coastal territory, which holds millions of acres of virgin but likely looking oil land, sent the wildcatters, both large companies and small operators, into that district on a large scale. Scores of locations were made, scattered over nearly all the coastal parishes. So far most of these have not been drilled, many have been abandoned, and except for the geophysical exploration and the drilling on the fields already mentioned very little materialized.

Sulphur Dome of Calcasieu Parish established itself as one of South Louisiana's fields to be reckoned with by the consistent string of good producers drilled down the west flank. Its production at times ran as high as 6,000 and 7,000 bbls. daily. This dome had been operated by the Union Sulphur Co. for years for its rich sulphur deposits, now exhausted, but it was not until late 1926 that the first commercial well was opened and it was not until 1928 that drilling for oil was started in earnest.

Sweet Lake was featured by the completion of a deep well, Pure Oil Co.'s No. 5 Yount Lee Oil Co., which came in last June flowing an estimated 5,000 bbls. daily, and in the intervening months it has produced over 560,000 bbls. Still flowing late in January, it has set a record for long life and production at Sweet Lake. It is producing at 5,718 feet, being deepened from 5,660 feet, at which level it produced 15,000 bbls.

Exploring South Louisiana

Despite the opening and development of several important fields during the year, operators were most concerned in the intensive search for new salt domes in South Louisiana. Although nearly as many new domes were found on the Texas side of the line the exploration in southern Louisiana was looked upon with a little more interest in view of the great territory which previously had not been prospected.

Before this year, development in southern Louisiana had been confined chiefly to the central and southwestern coastal parishes but following the opening of the Sorrento Field in Ascension Parish, east of the Mississippi River in March, a rush of geophysical crews was started into the extreme southern and southeastern parish and that territory east of the river.

As a result 16 new domes were found in various parts of southern Louisiana, chiefly in the virgin part of that state. The greatest single accomplishment was

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OPERATORS IN NEW YORK AND PENNSYLVANIA HAD A GOOD YEAR

By George Turnbull

With the highest average price for crude the Pennsylvania Grade fields have had in years and with a slowly but steadily increasing production in the Allegany and Bradford Fields, operators in America's oldest oil-producing region, the northern division of the Eastern Field, may be said to have had a prosperous year.

The Allegany Field in the county of the same name in southwestern New York State produced an average close to 7,000 bbls. per day while the Bradford Field is credited with an average close to 16,000 bbls. per day. There was some letup in the number of wells completed in the two fields as compared with the record of 1927. In the Allegany Field 474 wells were finished of which only 4 were dry and 6 were gas wells. Bradford completed 1,572 wells of which only 1 was dry and 11 were gassers. This is a decline of 18 completions in Allegany and 271 wells in Bradford when compared to the amount of field work done in 1927. A slump in operations came in the first half of the year, but the increasing price for oil had an inspiring effect on producers in both fields. A slight falling off is recorded in field work in the Middle Field, Venango-Clarion Field and northern Butler-Armstrong areas.

The outstanding field development of the year in the northern end of the field was the increase in the number of water flooding operations in the Bradford and Allegany Fields. By intensive flooding is meant the development of pieces from 20 acres up with the complete drilling of the entire piece with water holes and oil wells in various geometrical patterns and spacings according to the operators' various ideas. This system permits of many economies in operating and develops a large production in a shorter period than under the more primitive flooding systems. As to the ultimate recovery by this method as compared with the slower development by means of the line flood only time will tell.

Another development of the past year in the flooded fields and one which has attracted wide attention has been the coring with cable tool outfits. Operators are enabled to obtain much valuable information regarding the oil content of sands and variation of texture and porosity. Another year or two will see much more of this work being done.

The deep sand gas well drilled near Wirt in Allegany County, New York, by the Deep Well Drilling Co. on a structure discovered and worked out by Paul Torrey of Bradford, was the most important new discovery of the year in the Eastern fields. It was thought that this well was producing from the Onondaga limestone but a second well drilled to the same depth as the first was dry and this has led to the belief that the discovery well is producing from a stratum in shales several hundred feet above the Onondaga limestone. The second hole at the close of the year was going deeper trying to find the Onondaga.

Bradford-Allegany operators are not yet in agreement over the respective methods of water and air or gas under pressure as a means of increasing production. The use of gas has not been

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Louisiana Gulf Coast

	January (bbls.)	February (bbls.)	March (bbls)	April (bbls.)	May (bbls.)	June (bbls.)	July (bbls.)	August (bbls.)	September (bbls.)	October (bbls.)	November (bbls.)	December (bbls.)	Total (bbls.)
ANSE LA BUTTE—													
Daily average	50	53	60	56	57	65	63	66	59	59	51	46	
Month	1,550	1,537	1,860	1,683	1,775	1,940	1,967	2,035	1,775	1,842	1,520	1,416	20,900
BAYOU BOUILLON—													
Daily average	.....	.....	1,600	748	270	478	686	680	1,003	1,002	749	545	
Month	.....	.....	49,586	22,404	8,380	14,320	21,260	21,082	30,082	31,077	22,470	16,900	237,561
EAST HACKBERRY—													
Daily average	1,151	1,349	1,327	1,875	2,935	4,348	8,400	4,260	2,881	2,925	4,596	5,050	
Month	35,684	39,140	41,135	56,265	90,986	130,429	260,400	132,075	86,425	90,665	137,875	156,559	1,257,638
EDGERLY—													
Daily average	1,750	1,458	1,315	1,168	1,116	1,139	1,064	1,069	990	871	774	967	
Month	54,246	42,282	40,756	35,029	34,601	34,183	33,000	33,139	29,703	26,997	23,219	29,974	417,129
EVANGELINE—													
Daily average	1,099	963	952	1,262	999	944	967	1,096	975	866	936	919	
Month	34,051	27,936	29,499	37,859	30,963	28,325	29,977	33,987	29,247	26,854	28,069	28,495	365,262
LOCKPORT—													
Daily average	4,917	4,916	4,013	4,971	4,078	4,060	3,617	3,292	3,399	3,333	3,561	3,877	
Month	152,434	142,566	124,408	149,132	126,412	121,796	112,113	102,045	101,965	103,333	106,836	120,200	1,463,240
SORRENTO—													
Daily average	.....	.....	395	.....	212	1,759	1,639	1,163	1,169	789	704	1,096	
Month	.....	.....	12,250	.....	6,564	52,775	50,814	36,045	35,066	24,450	21,133	33,969	273,066
STARKS—													
Daily average	312	263	201	220	175	164	493	848	1,304	824	875	859	
Month	9,678	7,622	6,242	6,586	5,422	4,932	15,276	26,302	39,133	25,534	26,240	26,618	199,585
SULPHUR—													
Daily average	103	229	676	1,780	2,491	5,701	4,585	3,292	2,457	3,171	2,847	3,398	
Month	3,206	6,610	20,955	53,397	77,216	171,033	142,100	102,050	73,725	98,300	85,400	105,350	939,342
SWEET LAKE—													
Daily average	482	810	690	.....	505	3,480	3,946	3,856	3,156	2,484	1,839	1,168	
Month	14,945	23,488	21,382	.....	15,665	104,413	122,325	119,550	94,700	77,000	55,185	36,200	684,853
VINTON—													
Daily average	4,246	4,448	4,786	4,583	4,643	4,583	4,566	4,325	4,330	4,186	4,315	4,357	
Month	131,625	129,007	148,360	137,492	143,936	137,492	141,552	134,072	129,904	129,774	129,464	135,083	1,627,762
LOREAUVILLE—													
Daily average	.....	.....	.....	.....	23	15	7	1	.....	5	4	2	
Month	.....	.....	.....	.....	710	443	222	31	.....	156	119	56	1,737
WELSH—													
Daily average	16	16	18	15	12	10	21	21	20	18	33	30	
Month	496	464	558	450	372	300	651	651	600	570	984	930	7,026
Daily average	14,126	14,505	16,033	16,478	17,516	26,746	30,053	23,970	21,743	20,533	21,284	22,314	
Total 1928	437,915	420,652	496,991	500,297	542,992	802,382	931,657	743,064	652,305	636,552	638,514	691,750	7,495,071
TOTAL GULF COAST—													
Daily average	122,645	125,168	123,768	125,149	134,050	137,532	141,253	135,127	131,619	123,955	133,288	135,486	130,788
Total 1928	3,801,990	3,629,891	3,836,765	3,760,430	4,155,534	4,125,977	4,378,872	4,188,943	3,948,578	3,842,655	3,996,644	4,200,073	47,868,342
Total 1927	5,232,366	4,409,580	4,837,581	4,420,560	4,762,127	4,612,620	4,432,535	4,301,901	4,258,890	4,379,432	4,176,450	4,350,044	54,174,086
Total 1926	3,023,877	2,820,608	3,034,683	2,842,050	3,208,721	2,849,970	3,785,069	5,287,019	5,655,960	5,433,029	5,285,730	5,570,607	48,806,575
Total 1925	2,383,646	2,463,780	2,840,499	3,176,690	3,436,071	3,296,620	3,315,698	3,045,340	3,077,339	3,210,372	2,876,640	2,921,880	34,850,575
Total 1924	2,773,880	2,701,272	2,967,630	2,424,390	2,456,657	2,419,800	2,522,191	2,608,092	2,480,880	2,671,209	2,471,170	2,618,819	30,166,090

Big Gas Expansion in La.-Ark. Area

Aside From Champagnolle, in Arkansas, Little New Production Was Developed, but Gas Operators Had Busy Year

By D. H. Bancroft
Staff Correspondent, Louisiana-Arkansas

Expansion of the already extensive natural gas industry in Louisiana, Arkansas and East Texas was the unmistakably predominant characteristic of developments in the Shreveport division for 1928.

Of 1,014 completions in the whole territory 292 were gas wells having a total initial open flow of 4,264,500,000 feet of gas. This was an increase of 1,000,000,000 feet from only seven more wells than were drilled in 1927.

To make this gas, or that part of it actually consumed, available to consumers within and without the State, approximately 800 miles of trunk line was constructed, increasing the amount of gas to communities already served and increasing the market territory.

While this expansion was going on, the year also witnessed the rise and extension of the Champagnolle Pool in Union County, Arkansas, which, better known as an oil field, nevertheless contributed an open flow capacity of 508,000,000 feet of gas to the division's total new capacity; it witnessed the rise and fall of Cotton Valley, Louisiana, as a producer of oil from the deep Trinity horizons and the addition of those horizons in that district to the division's gas sources; the development and temporary halt, through lack of outlet, of the Richland Parish gas field; a greater development of the long known Sarepta-Shongaloo gas district of northern Webster Parish, Louisiana, and the passage of Pleasant Hill Pool in Sabine Parish, Louisiana, as far as further development is concerned.

Development of Champagnolle

Several good shallow wells were completed in Champagnolle during 1927 but it was not until Pure Oil Co. completed No. 1 Gregory in Section 10-17-14, flowing an initial 2,000 bbls. of clean oil from 3,153 feet that the field got thoroughly under way. This well, tapping a new deep sand, started a drilling campaign results of which were such as to cause fears of overproduction that would contribute to the further demoralization of an already demoralized crude market. Limitation of drilling was discussed by Champagnolle operators and the Arkansas Conservation Department but no restrictions were imposed except one prohibiting installation of air or gas lift on wells below 3,100 feet, and this was removed early in the fall.

The field reached its peak in May when there were 17 completions, 15 producers having an initial production of 25,712 bbls., 1 gas well and one failure. There were more completions during June but production had started on a decline which has continued ever since.

This development brought into production approximately five sections on which there were 115 producing wells at the end of the year. The eastern extension of the field in Sections 6 and 7-17-13, was opened by Lion Oil Refining Co. with No. 1 Union Sawmill in the SW cor. SW SE, Section 6-17-13, making an initial 316 bbls. from 3,059 feet. Since then 17 producers, 2 gas wells and 3 failures have been completed and 9 wells were under way at the end of the year. Five pipe lines, three of them 6 and 4-inch looped, were built into the field soon after the intensive development following the Pure's deep discovery well got under way, the peak run being reached during the week ending June 14 when daily average shipments totaled 30,100 bbls. From then on runs fell rapidly until at the end of the year they were 11,395 bbls.

The deep sand area southwest of the original wells quickly proved to be a tricky proposition, oil wells, failures and gas wells offsetting each other all the way through its development, but results so far in the eastern extension have shown considerable improvement.

Trinity Sand Disappointment

Cotton Valley, Louisiana, appeared as a potential deep Trinity oil field when Ohio Oil Co. completed No. 38 Bodcaw in Section 15-21-10, making 3,658 bbls., 45 gravity oil, with 15,000,000 feet of gas, from 12 feet of sand, total depth 4,683 feet. It differed from the deep wells in Pine Island in that it found a true sand condition and was followed during the year by 33 more wells by Ohio Oil Co., Magnolia Petroleum Co., Humble Oil & Refining Co., Dixie Oil Co. and others, only two more producers being added, however, all the others being gas w and possibly a half dozen failures told. First pipe line runs of the crude were made during the week endi April 5, the first full week's runs be those of the week following. They start off at a peak, 5,550 bbls. and steadi declined until at the end of the year th averaged only 50 bbls. One of the pr ducers went dead during the fall and t second passed out during the early pa of December.

Rich Gas in Cotton Valley

While results of this deep drilling Cotton Valley were disappointing so f as crude is concerned, it cannot be sa that they were unprofitable. Anywhe else gas wells averaging the size of th and at these depths, 4,200-4,600 and eve 4,800 feet, would pay very small return require a long time to pay out, if ever but Cotton Valley's deep gas has so high a gasoline content that wells of 1,000,000 feet might be considered a better proposition than a small oil producer.

During the first half of the year Richland shared with Champagnolle honors as the most active districts in the division, but after July completions became less and less frequent due almost entirely to lack of an outlet for production there being but one line, 10-inch, out of the field until about the middle of the last half of the year when the Magnolia Pipe Line Co. completed an extension of its line from northwest Louisiana

North Louisiana
Daily Average and Monthly Production in 1928

	January (bbls.)	February (bbls.)	March (bbls.)	April (bbls.)	May (bbls.)	June (bbls.)	July (bbls.)	August (bbls.)	September (bbls.)	October (bbls.)	November (bbls.)	December (bbls.)	Total (bbls.)
CADDO (Light)—													
Daily average	11,512	11,555	10,763	10,437	9,867	9,785	9,725	9,513	9,164	9,161	9,297	9,181	
Month	357,872	335,095	333,653	313,110	305,877	293,541	301,785	294,903	274,920	283,991	278,910	284,611	3,657,2
CADDO (Heavy)—													
Daily average	3,446	3,938	3,939	3,839	3,712	3,279	3,234	3,110	3,107	2,948	2,930	2,909	
Month	106,826	114,202	122,109	115,170	115,072	98,377	100,254	96,410	93,210	91,388	87,900	90,179	1,231,0
HOMER—													
Daily average	4,304	4,426	4,407	4,441	4,422	4,378	4,385	4,341	4,259	4,179	4,110	4,057	
Month	133,424	128,354	136,617	133,230	137,082	131,341	135,935	134,571	127,770	129,549	123,300	125,767	1,576,3
HAYNESVILLE—													
Daily average	6,339	6,384	6,273	6,306	6,268	6,353	6,144	5,952	5,805	5,803	5,802	5,469	
Month	196,509	185,136	194,463	189,180	194,308	190,590	190,464	184,512	174,150	179,893	174,060	169,539	2,222,8
DE SOTO-RED RIVER—													
Daily average	4,185	4,275	4,193	4,146	4,114	4,168	4,201	3,977	3,922	3,966	4,132	4,101	
Month	129,735	123,975	129,983	124,380	127,534	125,051	130,231	123,287	117,660	122,946	123,960	127,131	1,505,8
ELM GROVE—													
Daily average	591	563	568	554	526	554	611	569	534	542	583	585	
Month	18,321	16,327	17,608	16,620	16,306	16,618	18,941	17,639	16,020	16,802	17,490	18,135	206,8
BELLEVUE—													
Daily average	1,032	981	1,002	1,111	1,055	905	841	765	779	821	935	886	
Month	31,992	28,449	31,062	33,330	32,705	27,157	26,071	23,715	23,370	25,451	28,050	27,466	338,8
COTTON VALLEY—													
Daily average	4,478	4,493	4,487	8,293	7,379	5,201	5,196	4,490	4,554	4,368	4,195	3,484	
Month	138,818	130,297	139,097	248,790	228,749	156,022	161,076	139,190	136,620	135,408	125,850	108,004	1,847,9
URANIA—													
Daily average	7,495	8,024	7,890	7,365	6,699	7,220	7,231	6,893	6,609	6,390	6,268	6,063	
Month	232,345	232,696	244,590	220,950	207,669	216,603	224,161	213,683	198,270	198,090	188,040	187,953	2,565,8
PLEASANT HILL—													
Daily average	784	656	643	571	572	558	565	590	531	521	528	526	
Month	24,304	19,024	19,933	17,130	17,732	16,740	17,515	18,290	15,930	16,151	15,840	16,306	214,8
Daily average	44,166	45,295	44,165	47,063	43,614	42,401	42,143	40,200	39,264	38,699	38,780	37,261	41,9
Total 1928	1,369,146	1,313,555	1,369,115	1,411,890	1,383,034	1,272,040	1,306,433	1,246,200	1,177,920	1,196,669	1,163,400	1,155,091	15,567,9
Total 1927	1,589,122	1,474,004	1,589,711	1,511,250	1,469,710	1,435,020	1,751,376	1,748,067	1,567,320	1,591,347	1,596,210	1,469,950	18,793,6
Total 1926	1,343,788	1,288,000	1,511,219	1,556,580	1,830,705	1,809,180	1,780,175	1,761,513	1,703,190	1,801,224	1,696,411	1,689,655	19,771,6
Total 1925	1,519,434	1,346,105	1,528,037	1,528,037	1,600,306	1,520,325	1,552,807	1,537,786	1,433,760	1,487,969	1,371,862	1,384,243	17,843,7
Total 1924	1,398,370	1,314,242	1,311,142	1,311,142	1,401,835	1,617,610	1,601,365	1,588,873	1,568,773	1,500,053	1,703,481	1,595,278	18,699,5
Total 1923	2,272,641	1,911,560	2,136,590	2,136,590	2,125,298	1,986,283	1,668,922	1,738,790	1,580,760	1,624,431	1,610,190	1,422,910	22,232,6

Arkansas
Daily Average and Monthly Production in 1928

	January (bbls.)	February (bbls.)	March (bbls.)	April (bbls.)	May (bbls.)	June (bbls.)	July (bbls.)	August (bbls.)	September (bbls.)	October (bbls.)	November (bbls.)	December (bbls.)	Total (bbls.)
EL DORADO—													
Daily average	5,235	5,118	5,261	4,394	5,304	5,303	5,360	5,273	5,217	5,227	5,053	4,922	
Month	162,285	148,422	163,091	131,820	164,424	159,096	166,160	163,463	156,510	162,037	151,590	152,893	1,881,7
SMACKOVER (Light)—													
Daily average	8,718	8,578	8,380	7,931	7,573	7,715	7,555	7,414	7,352	7,252	7,085	7,119	
Month	270,258	248,762	259,780	237,930	240,343	231,441	234,205	229,834	220,560	224,812	212,550	220,689	2,831,1
SMACKOVER (Heavy)—													
Daily average	68,861	68,286	66,745	62,621	60,758	58,974	58,176	57,109	55,887	55,140	54,180	53,032	
Month	2,134,691	1,980,294	2,069,095	1,878,630	1,883,498	1,769,220	1,803,456	1,770,379	1,676,610	1,709,340	1,625,400	1,643,992	21,944,8
STEPHENS—													
Daily average	1,141	1,080	1,091	1,069	1,050	1,029	1,014	1,023	1,026	1,037	1,010	1,012	
Month	35,371	31,320	33,821	32,070	32,550	30,878	31,434	31,713	30,780	32,147	30,300	31,372	383,7
NEVADA COUNTY—													
Daily average	2,855	1,968	1,714	1,486	1,467	1,650	1,450	1,271	1,235	1,294	1,388	1,401	
Month	88,505	57,072	53,134	44,580	45,477	49,492	44,950	39,401	37,050	40,114	41,640	43,431	544,8
LISBON—													
Daily average	2,504	2,370	2,355	2,285	2,198	2,001	2,021	1,961	1,891	1,812	1,053	1,667	
Month	77,624	68,730	73,005	68,550	68,138	63,039	62,651	60,791	56,730	56,172	31,590	51,677	738,6
BRADLEY—													
Daily average	100	100	118	113	105	101	100	100	100	100	100	91	
Month	3,100	2,900	3,658	3,390	3,255	3,006	3,100	3,100	3,000	3,100	3,000	3,038	37,6
CHAMPAGNOLLE—													
Daily average	168	1,175	1,044	2,521	13,102	25,368	14,393	13,326	11,961	13,702	12,667	12,080	
Month	20,088	34,075	32,364	75,630	406,162	769,739	446,183	413,106	358,830	424,762	380,010	374,480	2,735,4
Daily average	90,061	88,675	86,708	82,420	91,737	102,530	90,069	87,477	84,669	85,564	82,536	81,341	87,8
Total 1928	2,791,922	2,571,575	2,687,948	2,472,600	2,843,847	3,075,911	2,792,139	2,711,787	2,540,070	2,652,848	2,476,080	2,521,571	32,137,8
Total 1927	4,076,469	3,574,256	3,853,920	3,378,240	3,493,669	3,365,760	3,406,683	3,242,600	3,032,970	3,117,298	2,906,760	2,962,750	40,431,3
Total 1926	5,489,604	4,756,836	5,115,837	5,127,510	5,482,939	5,064,760	5,019,892	4,878,191	4,603,230	4,625,138	4,299,480	4,366,189	58,729,6
Total 1925	3,252,303	2,886,296	3,564,473	7,560,230	11,813,996	9,200,372	7,835,819	7,450,580	6,457,950	6,409,281	5,927,955	6,047,833	78,407,2
Total 1924	3,686,680	2,302,750	3,882,695	4,068,225	4,659,117	4,756,443	4,597,969	4,359,241	4,029,535	3,983,696	3,461,050	3,380,511	48,167,8
Total 1923	3,222,605	2,740,034	2,978,802	2,873,820	3,219,319	3,463,227	3,713,738	3,292,580	3,165,900	3,120,374	2,973,000	4,017,850	38,766,1

sources through the East Texas fields to Beaumont through the Monroe district to the new field. The year's activities, however, accounted for 63 completions of which 20 were failures, most of which defined the field on the west and southwest. The 43 producers added 1,757,999,818 feet to the division's open flow capacity. The great majority of these producers were of large capacity, averaging possibly 45,000,000 feet at pressures averaging 1,100 pounds. Development of the field was marred by two craters, one attributed to faulty casing and the other to gas from a blowout in a nearby well seeping into shallow fresh water sands into another drilling well. All efforts to kill both craters were unsuccessful though it was weeks before the effect of the wastage was noticeable in nearby old producers and new completions.

Cartersville District

The Cartersville gas district of northeastern Bossier Parish had much the same experience as Richland. Active throughout the first half of the year development practically stopped in July only one well, a dry hole, completed in November, being drilled thereafter. This activity, however, accounted for 26 gassers with 748,500,000 feet open flow, 7 dry and one 150-bbl. producer. The year before 23 gas wells with 497,000,000 feet open flow, 1 failure and two producers with 1,885 bbls. initial had been completed. The producers declined quickly but during the early part of this year Louisiana Oil Refining Corp. built a 3-inch line from loading rack at a small station on the Cotton Belt Railroad a few miles east and has been loading out several cars a week.

Gas pipe line capacity was available through lines from Mooringsport and Waskom reaching both Cartersville, north Webster and Cotton Valley sources.

North Webster's Activity

The north Webster sources had been known and intermittently drilled since about the time of the Haynesville boom in 1921 which led to considerable wildcatting to the west but it was not until the Magnolia Pipe Line Co. and Dixie-Gulf Gas Co. built their East Texas-Webster extensions that their real development began. The extent of this development is shown by the fact that only 6 wells with an initial open flow of 127,500,000 feet and one dry hole were completed in the Sarepta-Shongaloo district during 1927 whereas the 1928 record shows 26 wells with 300,500,000 feet open flow, 2 producers with 185 bbls. initial and 10 failures. The two producers were in the Sarepta area on the west, two wells in the Shongaloo area at the opposite end of the district which showed strongly for commercial production proving failures. The district possesses both high and low-pressure areas, the pay being found at 2,500-2,700 feet.

New Lines Out of Monroe

The Monroe gas district as a whole, while it shows considerably more drilling than in 1927 reveals a somewhat smaller initial production. There were 38 gas wells with 601,000,000 feet and 12 failures in 1927 and 75 producers with 875,000,000 feet and 29 failures in 1928. Four new pipe lines were built into the district during the year, one 16-inch to El Dorado and Camden, Ark., one 18-inch to Memphis, Tenn., and the Magnolia's 20-inch from East Texas by way of Webster. A short 7-inch line was built to a paper mill at Hodge, La.

Expansion of East Texas Area

The expansion of the gas industry in the division which was the cause of the greater activity general among the districts so far outlined, also had its effect on the East Texas field, principally the Panola County Field. There were 122 completions in this territory this year compared to 93 the year before, an increase of 29, but there were four times as many failures, 81 compared to 20, but the average completion was better than in 1927 as the 34 gas wells of 1928 added 304,000,000 feet compared to the 62 in 1927 which added 356,000,000 feet.

Two things happened in the closing weeks of the year to bring this part of the division into prominence for a short while, Gulf Refining Co.'s No. 1 Pickering in the P. W. Hardy Survey of Shelby County, 10 miles southwest of the Logansport area in DeSoto Parish, Louisiana, and a return to deep sand production in Panola County prompted by two or three completion and a couple of blowouts. The Gulf's well made 147 bbls. initial of 37.8 gravity crude from 5 feet of sandy lime, total depth 3,382 feet after it had been deepened from 3,248 feet where it had had a couple of gas blowouts. It was the first well at this level in that territory and the first commercial well in several years, but a week after its completion production had dropped to 86 bbls. and continued to decline until a month later it was making only a small fraction of its flush.

D. Thomason's No. 11 Crenshaw in the B. C. Jordan Survey of Panola County, blew in October 31 from 2,660 feet wrecking the derrick and was finished three weeks later making 25,000,000 feet of gas from the Fort Worth lime, as the first completion from that horizon for a considerable length of time and leading to deepening of old completions. It had been a 15-bbl. producer at 1,952 feet when completed by Arkansas Natural Gas Co. in 1925. Three days after it was completed by Thomason. C. W. White completed his No. 1 Robinson in the James Matthews Survey as a 20,000,000-foot producer from the same depth and two or three other wells from the same horizon followed during the ensuing weeks.

The Waskom district of Harrison County accounted for only 29 of the territory's 122 completions, 21 of them having an initial open flow of 61,072,000 feet. Marion County listed one 5-bbl. completion and a failure. Shelby County, in addition to the Gulf well, had two other producers and three failures. Magnolia Petroleum Co.'s No. 2 Pickering in the W. J. Crane Survey, had an initial production of 15 bbls. at 2,591 feet, and No. 3 on the same lease had 10 bbls. at 2,622 feet. Three failures were recorded in Cass County.

While Sabine Parish, Louisiana, listed 13 completions only 6 of them were in the Pleasant Hill district which, after May 24 failed to appear in completion records until December when The Texas Company abandoned No. 1 Hamlin, a wildcat 5 miles west of production at 4,304 feet. Five of these six were producers with an initial 409 bbls. and one was a failure. Of the remaining seven Sabine wells all were failures except the last, R. L. Gay's No. 1 Bowman Hicks, in Section 14-7-14, a 50-bbl. flowing well making 41 gravity oil at 2,130 feet. Drilling has been going on in Sabine for the last 10 years and more, but this is the second well of commercial size that has been drilled in all that time, and the first that has really been a commercial well as the first, completed in March, 1925, was lost.

Except for routine drilling for deep production in Pine Island and in other districts Caddo was without developments save for Magnolia Petroleum Co.'s No. 3 Levee Board in Section 7-20-15, which,

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Oil and Gas Steel Demand Greater

Steel Industry Had a Very Good Year in 1928. Pipe Mills Reported Planning Extensions

By B. E. V. Luty

PITTSBURGH, Pa., Jan. 28. — All told, the steel making industry had more demand from the oil and gas industry in 1928 than in 1927 or 1926.

The steel industry as a whole had a very good year indeed in 1928, there being record tonnage and a stiffening in prices in various lines which reached an unsatisfactory level in the fourth quarter of 1927. Activity of the steel industry is commonly measured by steel ingot production, the basis material, actual rolled steel running 73 to 74 per cent of the ingot tonnage on account of scale and scrap losses, the material being subsequently reclaimed in blast furnaces and open-hearth furnaces. Production in 1928 is estimated, with a probable error of hardly exceeding 250,000 tons.

Steel Ingot Production

	Gross tons
1923	43,485,665
1924	36,811,157
1925	44,140,738
1926	46,936,205
1927	43,776,717
1928	50,500,000

Production gained about 15 per cent over 1927 and 8 per cent over 1926, previously the record year. The gain over 1912 and 1913, the two best prewar years, was about 67 per cent. The year 1923 had been a year of quite full demand, except for a little tapering off in the closing weeks of the year. The increase in five years, 1923 to 1928, 15 per cent, was approximately matched by an increase in capacity, whereby steel production in 1928 was about 85 per cent of capacity as reported for December 31, 1927. Present capacity is in the neighborhood of 61,000,000 tons.

Capacity and Production

At the close of the war, 10 years ago, the steel industry appeared to be greatly oversized for normal peace time demand and it looked as if capacity would increase but little until demand caught up. However, year by year there is some new construction by individual companies wishing to round out their facilities, there are improvements outside of complete new construction, aiming chiefly at cost reduction but incidentally increasing capacity, and the effectiveness of works grows somewhat simple from experience.

On the other hand a 15 per cent margin between capacity and production may not seem large. There is really a greater margin, for the sum total of finishing capacity, for rolling ingots into semi-finished and the semifinished into final rolled products, is probably 20 to 30 per cent in excess of the steel ingot making capacity. Thus quite an increase in demand for some lines can be taken care of. There is also a margin in capacity for converting rolled products into final merchantable form.

What distinguished 1928, apart from the mere total of tonnage, was the particularly heavy tonnage in the second half of the year. Regularly there has been a decrease in steel production from the first half to the second half, averaging perhaps 10 per cent, but in 1928 there was slightly greater production in the second half. The first half of 1928 broke the first half record by a small margin, while the second half broke the second half record by a wide margin.

As to steel demand from individual lines of consumption, there were large gains in 1928 by the agricultural implement industry, the automobile industry and the laying of line pipe. In 1926, previously the record year in both steel production and automobile production, about 14½ per cent of all the steel went into automobiles. In 1928, with 3 per cent increase in the number of cars and trucks made and 8 per cent increase in the total production of steel, the proportion going into automobiles increased to about 18 per cent. That divergence was due to the average weight of vehicles increasing very considerably.

Pipe Production

As officially reported, total production of welded pipe and seamless tubing was as follows, in gross tons:

	1926	1927
Welded pipe	3,402,515	3,117,451
Seamless tubes	775,329	864,140
Total	4,177,844	3,981,591

Production of oil country tubular goods, included in the above, was reported as follows:

	1926	1927
Welded	1,328,294	1,199,936
Seamless	446,078	561,002
Total	1,774,372	1,760,938

It is impossible to make close estimates of 1928 production. Production of standard or merchant pipe was about the same as in 1927. Production of oil country goods as a whole had an increase. There may not have been any increase in casing and other well material, but there was a large increase in line pipe. There is a chance of there being some confusion when the 1928 production statistics are reported, next April or May, as it is not known whether the line pipe production of the A. O. Smith Corp. will be included. It is understood that the company's production in 1927 was not included in the official statistics, this production reaching volume in September of that year. Thus the official statistics would not really represent production of pipe, but output of what are technically called "the pipe mills."

Report has it that electrically welded line pipe production in the first seven months of 1928 totaled 180,000 net tons, and that recently there was 170,000 net tons on books, involving about 1,600 miles, in various sizes, nearly all for natural gas line. Capacity is 8 to 9 miles daily, but a new plant is to be completed within a few weeks, doubling the capacity.

The pipe mills averaged in 1928 an operation at about two-thirds of capacity, which is probably in excess of 4,500,000 gross tons per annum.

Plant Expansion

Important developments in manufacturing are promised for 1929. In the past few months the National Tube Co. (Steel Corp.) has been drawing plans for a large extension at its McKeesport, Pa., works, where hitherto only welded pipe has been made, for making seamless tubing up to large sizes. This would involve an open-hearth steel making department, as the present works are provided only with Bessemer steel making facilities. Details of these plans have not been announced, as the whole program must go before the financing committee of the steel corporation for approval and appropriation of the necessary funds. Rumors have it that the expenditures may run $25,000,000 to $30,000,000.

Both the Youngstown Sheet & Tube Co. and the Republic Iron & Steel Co. have been interesting themselves in electrically welding processes, contemplating the manufacture of relatively small diameter pipe, and new construction by these companies is also likely.

In the steel trade it is considered altogether probable that line pipe will be in heavy demand in 1929 and that there will be considerably better demand for casing and other well material.

Oil country tubular goods had a 10 per cent decline in 1927, from the level reached in April, 1923, while standard or merchant pipe declined 5 per cent, but declines being by way of extra discounts or trimmings being given, regular discount cards and price lists being unchanged. April 2, 1928, the extra 5 per cent on standard pipe was removed, putting the market back to its former level, but oil country goods remained at the lower prices developed in 1927.

The Department of Commerce receives reports from plate fabricating concerns, without stating the proportion of the total industry represented in the reports. For the first 10 months of 1928 the bookings reported in oil storage tanks amounted to 195,227 net tons, against 188,687 tons in the same period of 1927 and 210,974 tons for the whole of 1927. The same concerns reported bookings of refinery materials and equipment of 30,529 net tons in 10 months of 1928 against 21,935 tons in 10 months of 1927 and 26,364 tons in the whole of 1927.

New Pools in Southwest Texas in 1928

A Score or More of New Producing Spots Were Discovered by Wildcatters and One Major Pool Developed in Edwards Lime

By B. D. Stevenson
Staff Correspondent, Southwest Texas

The outstanding feature in the oil business in Southwest Texas during the year 1928 was the 20 or more new places where oil or gas was discovered. In the year previous very little new oil production was brought in. The year 1928 seemed to be propitious for finding new production. A considerable number of the new spots in Southwest Texas have as yet not developed into fields. In the case of Blanco County where Robert Rodson got a sand at 962 feet with considerable oil in it, it is yet a problem as to what it will develop into but the important thing was that oil was found in that territory 40 or 50 miles from any other production. In the case of the Empire Gas & Fuel Co.'s No. 1 Norwood in Gonzales County, it as yet is only one well but it has produced over 2,000 bbls. as this was written and was in an incomplete state. Both it and the Blanco County well were located by geologists who had worked out the territory.

Conspicuous among the successes is the Joe Bruner or Salt Flats Pool at Luling in Caldwell County now with a daily production of over 12,000 bbls. putting it into the major class of producing pools and producing from the Edwards lime. This is the third pool to produce from the Edwards and this is quite as important a factor as the discovery of the pool itself. It will be remembered that following the bringing in of the Luling Pool by the United North & South Oil Co. producing from the Edwards lime there was a wildcat campaign of great intensity up and down the Balcones fault to find another such pool. Operators spent many hundreds of thousands of dollars hunting for more pools like Luling. It was not till 1928 that another Edwards lime pool was found and that second pool was the Roxana Petroleum Corp.'s find in the Larremore area in Caldwell County west of Lockhart a couple of miles. The pool was small and production has been a little disappointing. The field consists of 10 producing wells. It is about 8 miles northwest of the old Luling Pool.

The Joe Bruner or Salt Flats Pool is southeast of the old Luling Pool about 5 miles. Eight wells of the Gulf Production Co. in this new field, which have been in a few weeks, gauged 4,300 bbls. daily, or an average of 537 bbls. a day. Sun Oil Co.'s No. 1 Malone, the original Edwards lime discovery well of the field, was brought in about the middle of October and the first of January was producing 550 bbls. of oil daily and had been holding at that figure for weeks. Wells in this new field have come in for more than 1,000 bbls. initial production. The field January 1 was 4 miles long and nothing to indicate but that it may stretch out to be a field as long and big as the old Luling Field which is about 8 miles long. Production in the old Luling Field, discovered by the United North & South Oil Co., is at around 2,150 feet and in the Roxana Pool northwest of that at about 1,300 feet, and in the Joe Bruner-Salt Flats Field southeast of the old Luling Field at 2,700 feet.

History of Joe Bruner Pool

The Joe Bruner Field was first discovered as an Austin chalk formation field by Joe Bruner who brought in a small well in the Austin and attention was attracted to the field when the Golden West Oil Co. drilled north of the discovery well and got a well in the Austin with an initial production of 400 bbls. of oil and on the pump made 200 bbls. for several months. It has since been deepened to the Edwards and is being completed to produce from both formations. Other good producers have been completed in the Austin chalk as well, but the main pay of the field is the Edwards lime.

The Sun Oil Co.'s No. 1 Malone in addition to the 550 bbls. of oil, is producing some water, the water being about one-fifth of the total volume of production. Water with oil in Edwards lime is a common thing. It was water in the old Luling Field that scared off operators till the acreage was all gone. The old Luling Field has been a very profitable field, in spite of water. It has produced about 40,000,000 bbls. of oil in a period of five years. After taking several million dollars worth of oil from the field the United North & South Oil Co. sold to the Magnolia Petroleum Co. for $12,100,000 and this has all paid out and the Magnolia is now getting about 12,000 bbls. a day out of the field.

The Edwards lime from the Roxana wells at Larremore to the old Luling Field dips to the southeast at the rate of about 100 feet to the mile and from the old Luling Field to the Joe Bruner Field about the same amount. The Empire Gas & Fuel Co.'s No. 1 Norwood in Gonzales County is 6 miles southeast of the Joe Bruner Field and at 3,740 feet topped the Austin chalk. At that rate the formations from the Joe Bruner Field southeast are dipping at the rate of about 250 feet or more to the mile. The Empire Gas & Fuel Co.'s well is producing from the contact of the Taylor marl and Austin chalk with total depth 3,775 feet.

Serpentine Pools

Two new Serpentine producing spots were hit during the year. One by Cranfill & Reynolds on a Sun Oil Co. lease in the town of Lytton Springs never has developed beyond the one well. But Cranfill & Reynolds, about 10 miles north of that and 2 miles south of Cedar Creek in southwestern Bastrop County on the Yoast farm in the A. Garcia Survey, brought in a well at about 1,600 feet that was a good producer. Total depth was 1,598 feet and it swabbed 178 bbls. the first 10 hours. Top of the Serpentine was about 1,480 feet. A week later the well was up to 300 bbls. and two weeks later to 400 bbls. Since then one well was completed making 2,500 bbls. initial production. There are five producers in the field now and Magnolia has extended a pipe line to the field. So far only one dry hole has been drilled, it by the Amerada about 600 feet northeast of the discovery well.

Coast Counties

One of the most important finds of the year was oil in the Refugio gas field and lightning hit three times in the same field and for the same operators. The Texas Gas Co. was organized by drillers in the field and first discovered gas in sand at 3,700 feet in a well in the north end of the field, the first in that sand. They sold the well to Larson & Walsh. Then at the south end of the field in the Clint Heard No. 1 (since changed to Claude Heard No. 1) they brought in an oil well making around 100 bbls. on choke, with some water. It was sold to Benedum & Trees. In the north end of the field the same operators brought in the Holmes Heard No. 1, now making about 300 bbls. of oil, and it was sold to Saxet Gas Co. Both it and No. 1 Claude Heard are in the 3,700-foot sand and were the first oil wells of importance in the field though some other wells in other shallower sands have shown some oil and one of the Shelly wells of the Houston Gulf Gas Co. at one time made around 60 bbls. daily from 3,300 feet.

Another new find in the coast territory was the Agua Dulce gas field in western Nueces County by Grimm & Morris, who have since sold an interest to the Houston Gulf Gas Co. and have organized the Agua Dulce Oil & Gas [illegible]. The discovery well, No. 1 Garrett sand at 2,013-20 feet, gauged 100,000 feet of gas. The gas is wet and a [illegible] of crude oil has been taken from it now and then. The well was brought in [illegible] in August and two other good gas [illegible] have been completed since and some oth[illegible] wells are drilling. It is 23 miles west Corpus Christi.

Laredo District

Of the new producing spots in the Laredo section the biggest producer during 1928 has been the Albercas Pool with the Magnolia-Cole Pool a close second. The Albercas Pool in Blocks 64 and 65 of the Albercas grant in the southeastern part of Webb County and the acreage immediately south of them came in as a gas field and in March it was discovered that the Killam-Newton No. 1 Bruni, 150 feet west and a little south of the center of the east line of Block 65, was making some oil. The oil increased till the well was making 7 bbls. an hour. Then Killam drilled 300 feet east of it and got a well early in May flowing 500 bbls. a day. At the last of December the field had 35 wells and had produced down to December 31, 1928, a total of 725,058 bbls. of oil, the average daily production for the pool for December being 4,997.7 bbls. Gas lies to the west of the pool and Killam's No. 8 Bruni had sand at 2,176-82 feet.

The Magnolia-Cole Field, discovered by the Cole Petroleum Co., is 4 miles west of the original Cole gas field. The name Magnolia has been hooked on to identify it from the other Cole Pool there being no connection between the two. The pool also started with gas wells but developed into oil when some of the Cole wells began to make more oil than gas. Wells completed by Cole Petroleum Co. in March, 1928, began to make quite a little oil and subsequent completions made more oil. On December 31 there were 35 producing wells in the field with a daily average for December of 2,300 bbls. and the field down to that time had produced a little over 500,000 bbls. Production in this field is in sand at about 2,330-48 feet.

Schoolfield-O'Byrne

In northwestern Duval County Schoolfield & O'Byrne brought in a pool. The discovery well is the No. 1 Norton in Survey 250 and it was brought in August

(Continued on Page 280)

Southwest Texas

Daily Average and Monthly Production in 1928

	January (bbls.)	February (bbls.)	March (bbls.)	April (bbls.)	May (bbls.)	June (bbls.)	July (bbls.)	August (bbls.)	September (bbls.)	October (bbls.)	November (bbls.)	December (bbls.)	Total (bbls.)
MIRANDO AND MISCELLANEOUS—													
Daily average	6,965	6,920	6,760	6,715	6,588	6,591	7,346	8,127	9,887	10,223	12,001	13,399	
Month	215,915	200,680	209,560	201,460	204,231	197,730	227,746	251,947	296,612	316,915	360,041	415,369	2,890,1
LULING—													
Daily average	14,169	14,228	13,914	13,912	13,620	14,116	13,950	13,746	13,871	14,305	13,939	13,396	
Month	439,239	412,605	431,334	417,360	422,206	423,480	432,445	426,107	416,135	443,460	418,166	415,371	5,097,1
LYTTON SPRINGS—													
Daily average	1,545	1,520	1,486	1,414	1,383	1,352	1,311	1,267	1,236	1,184	1,189	1,138	
Month	47,895	44,083	46,066	42,415	42,881	40,560	40,642	39,284	37,051	36,705	35,670	35,274	491,5
DALE—													
Daily average	445	755	1,091	1,210	1,066	926	937	937	848	768	736	731	
Month	13,795	21,905	33,821	36,317	33,046	27,780	29,033	29,051	25,452	23,812	22,074	22,353	318,6
SOMERSET—													
Daily average	1,862	2,160	2,614	2,440	2,179	2,166	2,136	2,047	2,006	1,992	1,986	2,062	
Month	57,728	62,631	81,034	73,201	67,545	64,980	66,230	63,467	60,195	61,755	59,589	63,920	721,7
SOUTHERN—													
Daily average	164	163	161	160	160	162	.....	.....	.....	.....	.....	.....	
Month	5,099	4,722	4,991	4,800	4,959	4,860	.....	.....	.....	.....	.....	.....	29,4
CALLIHAM—													
Daily average	63	63	63	63	63	64	.....	.....	.....	.....	.....	.....	
Month	1,965	1,828	1,953	1,980	1,953	1,920	.....	.....	.....	.....	.....	.....	11,6
KINGSVILLE—													
Daily average	1,400	1,405	1,006	1,001	897	442	276	342	303	313	292	286	
Month	43,400	40,736	31,186	30,030	27,806	13,260	8,547	10,612	9,105	9,703	8,757	8,866	242,0
REFUGIO—													
Daily average	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	277	543	
Month	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	8,311	17,091	25,4
BRUNER—													
Daily average	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	5,756	
Month	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	178,439	178,4
LARREMORE—													
Daily average	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	196	
Month	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	6,076	6,0
YOAST—													
Daily average	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	205	
Month	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	6,353	6,3
Daily average	26,614	27,214	27,095	26,915	25,956	25,819	25,956	26,466	28,151	28,785	30,420	37,707	
Total 1928	825,036	789,190	839,945	807,553	804,627	774,570	804,643	820,468	844,550	892,350	912,608	1,168,912	10,284,8
Total 1927	1,245,673	1,075,312	1,167,584	1,112,760	1,092,223	1,020,180	1,005,733	985,149	959,850	923,242	868,290	878,502	12,332,6
Total 1926	1,233,397	1,100,726	1,320,842	1,176,630	1,208,163	1,062,020	1,303,333	1,425,690	1,371,420	1,368,092	1,284,180	1,278,502	15,133,0

Busy, Prosperous Year in Kentucky

Great Activity and Satisfactory Results in Ohio and Daviess Counties. Tennessee Offers Prospects as a Gas Field

By George A. Whitney
Staff Correspondent, Kentucky-Tennessee

One of the features of the Kentucky fields during the year 1928, was a steady market price for the crude produced over the State, and for that reason the well owners experienced a rather profitable season. At no time during the period did the crude prices reach above $1.75 a barrel at the wells. In the eastern division of Kentucky, operations were very slow, the western part of the State getting the heavy play of the drill with good results.

In the eastern Kentucky division during 1928 there were 188 completions of which 120 were oil wells with an initial production of 834 bbls.; 50 dry holes were drilled and 18 gas wells, from a territory running from the western portion of Wayne County to the division line between Kentucky and West Virginia. In the western Kentucky division there were 1,155 completions, of which 751 were producers with an initial of 34,503 bbls., 374 dry holes and 30 gas wells, making the total new wells for the year in the Blue Grass State 1,343, of which 871 were oil wells with a total of 35,337 bbls. in initial production, 424 dry holes and 48 gas wells. Compared with the figures for 1927 of the entire State, this shows 186 more completions, 84 more producers, 4,723 bbls. more production, 94 more dry holes and 8 more gas wells.

The activity was centered largely in Ohio and Daviess Counties, with Ohio County getting the bulk of the work done and the greater part of the big production, with Daviess County a close second. Ohio County alone had 518 completions, 145 of which were dry and 15 gas wells, leaving 358 new producing wells with an initial production of 19,139 bbls. Daviess County held second place with 345 completions, 220 of which were producers with an initial of 11,820 bbls., 117 dry holes and 8 gas wells. Barren County had 140 completions, 89 producers with an initial of 2,454 bbls., and 51 dry holes. In the eastern Kentucky division, Estill County led the division with 62 completions, of which 42 were producers with an initial of 124 bbls., and 20 dry holes.

Kentucky Crude Prices

At the close of 1927, the price of crude oil handled by the Cumberland Pipe Line Co., in the eastern division was $1.60 and at the close of 1928 the price was $1.75 at the wells, for Somerset crude.

In western Kentucky, the Illinois Pipe Line Co. posted two 15-cent increases bringing the closing price of 1928 at $1.63 per barrel at the wells.

In the same division, the Producers Pipe Line Co. is paying a premium of 10 cents a barrel for oil run through its line to the Ohio River station of the company from whence it is shipped by barges to a refinery at Louisville.

In the same division, but in Barren County, Glasgow Field, the Paragon Development Co.'s price at the close of the year for oil from Barren, Cumberland, Monroe and Clinton Counties, was $1.75 at the wells, and the price prevails for the crude from Clay County, Tennessee.

In Barren County, Kentucky, the Stoll Oil Refining Co. paid $1.75 at the close of the year for crude handled through its gathering line which is shipped by tank cars from Glasgow to the company's refining plant.

Tri-County Production

According to the Kentucky state report of production in the counties of Ohio, Daviess, Hancock and McLean, the total crude produced in the 12 months was approximately 2,717,866.71 bbls. The first 11 months of the year totaled 2,417,866.71 bbls., and the December production was estimated at 300,000 bbls. The amount produced in Ohio County for 11 months was 1,864,811.56 bbls.; in Daviess County, 536,807.74 bbls.; Hancock County, 15,153.36 bbls.; and McLean County, 1,094.05 bbls. This would represent close around $3,845,000 paid out for crude to the well owners and royalty owners. The production of all the fuels in Kentucky in 1928 aggregated 7,348,000 bbls.

Oil production in Ohio and Daviess Counties more than doubled for the past year over that of the preceding year and the money which it brought into the two counties was much greater, as the price of the crude was given two advances of 15 cents each per barrel.

Results of Test Wells

In January, James C. Ellis brought in his initial well on the Jane Daniels farm, east side of the rich Ambrose Pool in Ohio County, for an initial of 150 bbls. Young, Goldburg and others drilled a test on the J. C. Park farm, near the Gilbert Jolly Pool, and several miles west of the Ambrose Pool, which had an initial of 25 bbls. In Daviess County, Evans, Young and others' test on the Boyd Bristow, nearly a mile north of the McLean County line and a mile north of the Dimmick Brothers' test, came in at 30 bbls. initially. In Breckenridge County, southwest of Cloverport, Elem Doughtitt and others' test on the O. S. McGavock farm, produced 20 bbls. initially at 550 feet. In Henderson-Union Counties, Lucian Drury's test on the William Leaser farm, 500 feet southeast of the O'Daniel well, southwest of Corydon, produced 25 bbls. at 644 feet.

In February, the Glasgow Field of Barren County, got its best producers of the year. In Ohio County, James C. Ellis drilled a test on the J. T. Hoagland farm, in the Ambrose Pool, which had an initial of 150 bbls. Same party struck a 300-bbl. producer in a test on the C. Hoover farm, south of Taffy. In Daviess County, Miller and Damron's test on the Jim Brown farm, near Utica, in what is known as the Brown Pool, produced 200 bbls. initially. McMahan & Coomes drilled a test on the W. V. Lewis farm, between Boston and Habit, 4 miles southeast of Philpot, in the same county, getting a 40-bbl. initial producer. In Hancock County, the Chicago Petroleum Syndicate drilled a test on the J. B. Taylor farm, 5 miles south of Lewisport, which was estimated at 25 bbls., at a depth of 724 feet.

In March, Leeper Oil Co. and others' test on the Weir farm, near the Gilbert Jolly Pool, in the western part of the county, produced an initial of 15 bbls. Hartford Dredging Co.'s test on the B. M. Coomes farm, 6 miles east of Hartford and south of the fault, found 42 feet of sand, and produced 75 bbls. initially at a total depth of 907 feet, the oil first being found at 584 feet. In Daviess County, the Weideman Oil Co.'s test on the C. M. Fields farm, in the Hayden Pool, showed an initial of better than 200 bbls., and was an offset to the discovery well of the pool, on the Hayden farm. Atlantic Refining Co.'s test on the Trodgen farm, same area, is credited with an initial of 75 bbls., and Miller and Damron's second well on the Jim Brown farm, in the Brown Pool, was a 200-bbl. initial producer. Princeton Oil & Gas Co.'s test, drilled 4 miles north of Princeton, in Caldwell County, was reported an excellent gas well at 418 feet.

In April, the Ohio Oil Co.'s test on the Whittaker heirs' 84 acres, in the Whittaker Pool, produced 50 bbls. at 570 feet. Daly and Lowman's No. 4 Ollie Ezell 50 acres, near Bells Run, northwest of the Ambrose Pool and really an extension to this productive pool, produced 150 bbls. at 730 feet. In Daviess County, the Leeper Oil Co. and others brought in No. 1 on the Pete Mahloskey farm, near Utica, that produced at an average of 350 bbls. a day for six days and was still a good producer at the close of 1928. Percy Jolly and others drilled a 100-bbl. initial producer on the Jeff Leet, 68 acres, same area. Creek Oil Co.'s No. 1 Alvey Tyler, in the Brown Pool, produced 100 bbls. initially. In Webster County, Sebree Field, Craig & Lowrie are credited with the bringing in of a 5,000,000-foot gas well on the Rideout farm, at 550 feet. Buckner, Larue and others' No. 1 Trodgen, near Andersonville, in Daviess County, showed 125 bbls. initially.

In May, the Ohio Oil Co.'s No. 1 E. L. Patton, in the Midkiff Pool, Ohio County, produced an initial of 125 bbls. at 581 feet. In Daviess County, D. C. Stimson and others' No. 1 Mayfield, in the Hayden Pool, produced 100 bbls. initially at 918 feet with 22 feet of pay sand.

In June, in Ohio County, the Ohio Oil Co.'s test on the Charles Roach 130 acres, in the Whittaker Pool, came in with an initial of 135 bbls. at 573 feet. Creek Drilling Co.'s No. 1 Jim Howard, Brown Pool, Daviess County, started at 160 bbls. Water broke in on the Creek Oil Co.'s big well on the Jim Brown farm, in the Brown Pool, and it was abandoned. The No. 2 of this company on the Tyler farm, increased its production to 400 bbls., making it the best well in the pool. Wittmer Oil Co.'s test on the Boutcher farm, near Yelveton, came in dry.

Disappointing Wildcats

The territory east of Knottsville got a bad break when Merrifield and Kelsey found a dry hole on the Bill Kennedy farm, in Daviess County. Ohio Oil Co. drilled what looked like a 20-bbl. producer on the John Ruby farm, at Union Hill, in McLean County, and this county was hard hit during June with a record of six dry holes out of seven completions. In Meade County, Mossman Brothers and McDonald, of Oklahoma, leased up a large block of acreage in the vicinity of Wildon, and brought in the first oil producer in that county on the Stan Ellis farm, reported showing from 10 to 15 bbls.

Last Half of Year

In July, the Bowling Green Field of Warren County, a well drilled on the old Tarrant farm, now owned by A. L. Douglass, 3 miles out from Bowling Green, on Barren River Pike, produced at the rate of 10 bbls. an hour. In Ohio County, James C. Ellis' No. 1 Mary Cundiff farm, east edge of the Ambrose Pool, produced 100 bbls. the first 24 hours. In Daviess County, Timberlake and others' test on the Trimmell farm, near Utica, came in a gas well with a 2,000,000-foot volume. In Breckenridge County, James Stockwell's test on the F. F. Dean farm, near Glendean, produced 10 bbls., and Lang, Hinshaw and others' No. 1 on the Glen Moorman, 2 miles west of Glendean, was good for 15 bbls., indicating that a new pool of small wells has been uncovered where least expected.

Successes and Failures

In August, in Ohio County, the Ohio Oil Co.'s test on the Eula Henning farm, in the Whittaker Pool, produced an initial of 125 bbls. at 600 feet. A. M. Meyers made an effort to extend the same pool by drilling a test on the M. Roach 22 acres, but found a duster at 650 feet. In an effort to extend the Bells Run end of the Ambrose Pool, McClintock and others' drilled a dry hole on the Margaret Stinnett farm. Hupp, Duff and others also drilled a dry hole in a test a short distance away from good production in the Ambrose Pool, on the William Smiley 250 acres, but found nothing, and the Sunnydale Oil & Gas Co. got the same result in a test close in to the Sunnydale Pool, on the Ira Gray 84 acres. Wood Oil Co. drilled in a gas well at a test on the F. M. Reynolds farm, at Reynolds Station. Bales, Cecil and Drury got a duster on the George Duke farm, between Bells Run and Pleasant Ridge, in the western part of the county. Young found a 150-bbl. initial natural producer at a test on the K. N. Yeiser farm, in the Hayden Pool. The Ohio Oil Co.'s test on the G. A. Weller 200 acres, at Locust Grove near Ensor and an offset to the Rogers well, produced 42 bbls. initially. Creek Drilling Co.'s No. 7 Tompkins farm, showed a first-day production of 260 bbls., while the Delila Jewell Oil Co.'s No. 1 on the Delila Jewell farm, in the Brown Pool, made 125 bbls. Jess Watts and others drilled a test on the Howard 250 acres, nearly a mile south of the Jones Pool, and about 4 miles southwest of Whitesville, getting a 50-bbl. initial producer in the Jones sand at 659 feet. Mecca Oil Co. drilled a dry hole in a wildcat on the England farm, near Nucklos, in McLean County. In Breckenridge County, Ford, Buckner and Larue's test on the James Wilhite farm, near Glendean, was credited with 15 bbls. initially. Beaver Creek Oil Co. found a 1,000,000-foot gas well at a test on the Trigg Ennis farm, 18 miles east of Bowling Green, near the Hart and Barren County lines at 457 feet. Petroleum Exploration Co. drilled a test on the A. M. Venable farm, in Owsley County, getting a 1,400,000-foot gas well.

In September, Whitehill & Reich tried to extend the Ambrose Pool in a test on the Charles McKinley farm, but found a dry hole. In Daviess County, Wade and Moore drilled a 50-bbl. initial producer at a test on the E. L. Baird farm, in the Jones Pool. In Butler County, R. E. Lingenfelder's test on the J. F. Karp farm, near Rochester, showed 20 bbls. initially at 1,000 feet, and a purely wildcat venture. In Meade County, the Louisville Gas & Electric Co.'s test, 2 miles from Brandeburg in the Doe Run area, was reported at 10 bbls.

In October, the Wood Oil Co.'s No. 1 on the J. W. Maddox farm, at Reynolds Switch in Ohio County, opened up a new lead as the well showed an initial of 100 bbls. Same company drilled its thirty-fifth well on the Mary J. Elmore farm, in the heart of the Ambrose Pool, same county, getting a 100-bbl. initial production. This farm and the J. R. Weller farm, are the two most thoroughly drilled leases in the county. Louis Robbins and others' test on the Doctor Fireline farm, near the Jones Pool, Daviess County, produced 60 bbls. at 665 feet. In Webster County, E. M. Wilson and others' test on the Curry farm, near the big gas well finished early in the year, was credited with an initial around 25 bbls., and is in the Sebree territory. In Hopkins County, the Copper Flash Oil Co.'s No. 19 on the Drake heirs' farm, at Christy, is rated at 20 bbls. initially. In Metcalf County, Schriever and others' test found a 1,000,000-foot gas well in 12 feet of Blue Clay sand, similar to the Blue sand of Barren County. Petroleum Exploration Co.'s test on the Henry B. Hensley farm, in Clay County, produced a volume of 1,000,000 feet of gas.

In December, in Daviess County, Tops Development Co.'s No. 1 Marion Taylor,

(Continued on Page 282)

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North Central Texas' Declining Year

No Large Pools to Offset the Natural Falling Off in Production. Gas Featured the Panhandle District

By James H. Dameron
Staff Correspondent, North Central Texas and Panhandle Fields

North and North Central Texas developments during 1928 failed to offset the decline of oild production and although several areas were discovered that threatened to develop into pools out of the realms of the ordinary, none of these reached a production of sufficient importance to threaten a disturbance of conditions.

Panhandle and Ranger districts showed declines during the year, while the Wichita Falls district (North Texas) climbed approximately 10,000 bbls. The Wichita Falls district's gain was due mainly to the discovery of the Grayback Pool in southeastern Wilbarger County and the subsequent discovery of the Consolidated Pool in the same general territory. The combined output of these two pools was the biggest development in North and North Central Texas during the year. On January 1, 1928, Wilbarger County's production was around 10,300 bbls.

Opening of Grayback Pool

During the summer The Texas Company opened a development campaign in the Grayback Pool when its No. 4 Waggoner-E NW NW Section 24, Block 4, H.&T.C.R.R. Survey, came in making 2,000 bbls. A short while later Waggoner Refining Co. drilled the record well of the pool when its No. 1 Waggoner-H, NW NE NW Section 24, Block 4, came in good for 4,500 bbls. from two sands at 2,277-97 feet and 2,419-26 feet.

Numerous other good wells were completed in the pool and Wilbarger County rapidly rose to a production of better than 30,000 bbls. daily. The Consolidated Pool, to the southeast, did not have any spectacular wells but its group of fair size producers was a strong contribution to the increase in production.

Wilbarger County's gain ranked it as the leading producing county in the district and the ranking sweet and high-gravity oil producing county of the State. Its flush production for the year totaled approximately 93,000 bbls., which is more than three times the flush production of any county in North Central Texas.

Several other pools were discovered in the Wichita Falls district during the year, but most of these were relatively small producers. Their flush production was not big, but of sufficient volume to offset the decline of the older pools in the counties in which they were drilled.

One new producing county was added to Wichita Falls district when the Moody Oil Corp. completed a wildcat producer in the southeastern part of Haskell County. This well was drilled on the Reynolds Cattle Co. land during the fall. It had been shut down for several months and then deepened and discovered the first pool in Haskell County. The well was completed with an initial production of 46 bbls. About the time of this completion the Superior Oil Co. closed a deal with the Moody corporation through which the former obtained the Moody corporation's holdings.

Shortly after the first of the year the Superior Oil Co. drilled its second well in that area and completed it as a much better producer than the discovery well.

Coleman County Stands Out

Coleman County was one of the outstanding counties in development work of the Ranger district. Its best development, however, did not start until the latter part of 1928. At the present it has more field operations than any other county in the district. Its development has reflected in its daily average production which has climbed from around 1,200 bbls. daily to 3,600 bbls. daily.

No outstanding pools were discovered in the Ranger district last year and only a few small pools were developed. During the year the daily average production was fairly steady and showed only a small loss.

Brown County showed a loss of 3,262,488 bbls., or approximately 8,000 bbls. a day average production over the year. An increase in Shackelford County was due to the development of the Cook Ranch Pool that had been held down until the crude price structure improved. Another factor was the discovery of the Tannehill Pool in Shackelford County. The best completions in this pool were made right at the close of the year.

350-Foot Pay Sand

In Callahan County a "grass roots" pool was discovered last fall and has been developed into one of merit. Production is found around 350 feet and thus far the wells have had an average initial production of about 20 bbls. of high gravity crude. Three companies control the acreage in the Hatchett Pool.

In this connection Young County also

North Texas

Daily Average and Monthly Production in 1928

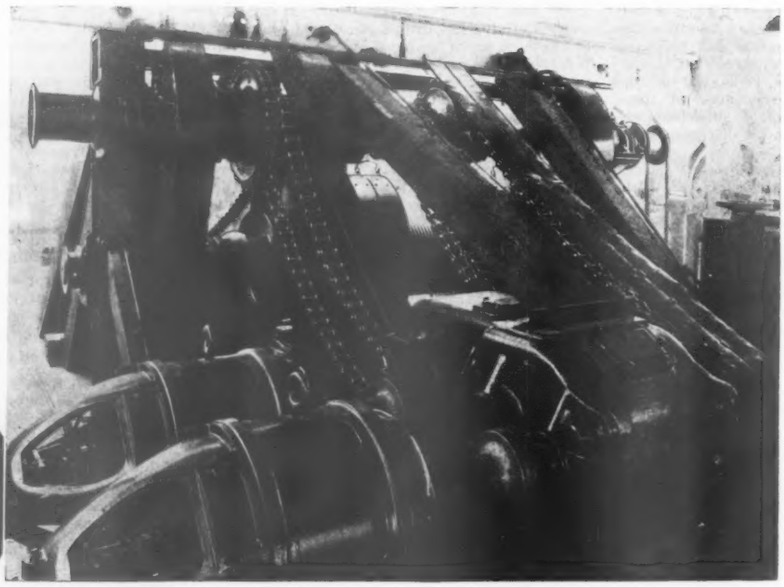
	January (bbls.)	February (bbls.)	March (bbls.)	April (bbls.)	May (bbls.)	June (bbls.)	July (bbls.)	August (bbls.)	September (bbls.)	October (bbls.)	November (bbls.)	December (bbls.)	Total (bbls.)
BURKBURNETT—													
Daily average	10,837	10,914	11,011	11,019	11,114	11,101	11,107	11,014	11,162	10,782	10,990	11,114	
Month	335,947	316,506	341,341	330,570	344,534	333,026	334,317	341,434	334,860	334,242	329,700	344,534	4,031,011
ELECTRA—													
Daily average	12,003	12,007	12,916	12,961	13,201	13,176	13,186	12,800	12,450	12,026	12,326	12,629	
Month	372,093	348,203	400,396	388,830	409,231	395,288	408,766	396,800	373,500	372,806	369,780	391,499	4,627,192
IOWA PARK, K.M.A.—													
Daily average	3,388	3,383	3,314	3,316	3,360	3,341	3,345	3,222	3,205	3,096	3,110	3,215	
Month	105,028	98,107	102,734	99,480	104,160	100,230	103,636	99,882	96,150	95,976	93,300	99,665	1,198,348
ARCHER COUNTY—													
Daily average	19,752	19,287	20,407	21,791	21,580	21,475	20,745	20,216	19,811	19,335	18,751	18,611	
Month	612,312	559,323	632,617	653,970	668,980	644,259	643,102	626,696	594,330	599,385	562,530	576,941	7,374,445
CLAY COUNTY—													
Daily average	515	480	549	537	551	536	527	534	487	523	475	431	
Month	15,965	13,920	17,019	16,110	17,081	16,081	16,348	16,554	14,610	16,213	14,250	13,361	187,512
WILBARGER COUNTY—													
Daily average	10,252	10,408	11,365	12,873	14,645	19,795	27,656	34,529	31,016	32,271	29,593	31,362	
Month	317,812	301,832	352,315	386,190	453,995	593,861	857,329	1,070,399	930,480	1,000,401	887,790	972,222	8,124,626
MONTAGUE COUNTY—													
Daily average	9,147	9,231	9,244	9,027	8,809	8,797	8,575	8,475	8,382	7,820	7,582	7,576	
Month	283,557	267,699	286,564	270,810	273,079	263,908	265,825	262,725	251,460	242,420	227,460	234,856	3,130,363
YOUNG COUNTY—													
Daily average	9,099	8,208	7,992	7,556	7,666	8,411	8,237	8,237	8,088	8,172	8,059	8,197	
Month	282,069	238,032	247,752	226,680	237,646	252,330	255,349	255,347	242,640	253,332	241,770	254,107	2,987,054
BAYLOR COUNTY—													
Daily average	92	94	81	93	92	96	101	105	91	89	67	83	
Month	2,852	2,726	2,511	2,790	2,852	2,698	3,130	3,255	2,730	2,759	2,010	2,572	32,886
COOKE COUNTY—													
Daily average	3,657	3,498	3,221	3,018	2,871	2,851	2,587	2,519	2,501	2,260	2,210	2,201	
Month	113,367	101,442	99,851	90,540	89,001	85,526	80,191	78,089	75,030	70,060	66,300	68,231	1,017,628
Daily average	78,742	77,510	80,100	82,198	83,889	89,573	96,064	101,651	97,193	96,374	93,163	95,419	89,375
Total 1928	2,441,002	2,247,790	2,483,100	2,465,970	2,600,559	2,687,207	2,977,993	3,151,181	2,915,790	2,987,594	2,794,890	2,957,989	32,711,065
Total 1927	2,884,736	2,621,220	2,996,367	2,885,220	3,202,703	3,064,920	3,043,332	2,993,236	2,882,790	2,708,780	2,641,140	2,680,632	34,605,076
Difference	443,734	373,240	513,267	419,250	602,144	377,713	65,339	157,945	33,000	278,814	153,750	277,357	1,894,011

Central Texas

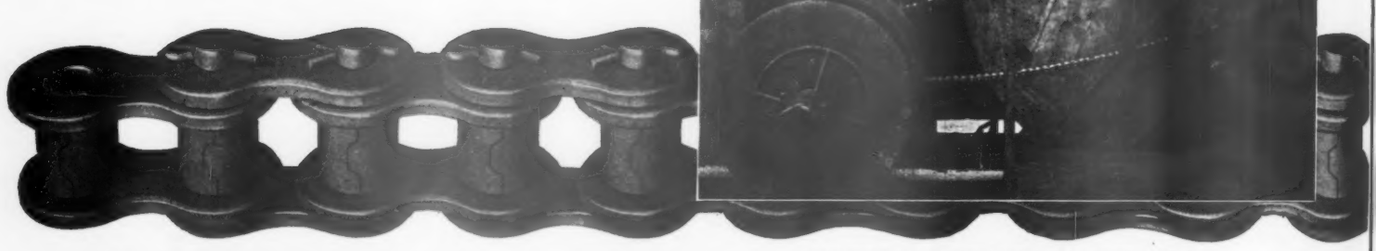
Daily Average and Monthly Production in 1928

	January	February	March	April	May	June	July	August	September	October	November	December	Total
COMANCHE COUNTY—													
Daily average	175	159	167	114	158	157	180	181	168	171	184	183	
Month	5,425	4,611	5,177	3,420	4,898	4,716	5,580	5,611	5,040	5,301	5,520	5,673	60,972
ERATH COUNTY—													
Daily average	297	288	290	331	306	302	301	274	276	265	260	266	
Month	9,207	8,352	8,990	9,930	9,486	9,053	9,331	8,494	8,280	8,215	7,800	8,246	105,384
STEPHENS COUNTY—													
Daily average	7,786	7,780	7,634	7,415	7,388	7,811	7,775	7,148	6,788	6,999	6,789	6,769	
Month	241,366	225,620	236,654	222,450	229,028	234,330	241,025	221,588	203,640	216,969	203,670	209,839	2,686,179
EASTLAND COUNTY—													
Daily average	8,196	8,517	7,357	6,893	6,717	6,806	6,193	6,232	10,900	6,545	6,415	6,381	
Month	254,076	246,993	228,067	206,790	208,227	204,182	191,977	193,192	327,000	202,895	192,450	197,811	2,653,660
BROWN COUNTY—													
Daily average	12,376	12,437	12,240	12,647	12,634	12,117	12,338	11,309	10,898	10,123	9,812	9,698	
Month	383,656	360,673	379,440	379,410	391,654	393,521	382,475	350,579	326,940	313,813	294,360	300,638	4,257,159
CALLAHAN COUNTY—													
Daily average	3,992	3,988	3,819	3,776	3,536	3,526	3,495	3,365	3,395	3,575	3,657	3,633	
Month	123,756	115,652	118,389	113,280	109,616	105,779	108,345	104,315	101,850	110,825	109,710	112,623	1,334,140
THROCKMORTON COUNTY—													
Daily average	1,056	1,003	1,016	997	926	942	876	818	789	803	758	769	
Month	32,736	29,087	31,496	29,910	28,706	28,260	26,970	25,358	23,670	24,893	22,740	23,839	327,665
JACK COUNTY—													
Daily average	1,482	1,422	1,330	1,215	1,229	1,349	1,394	1,392	1,694	1,450	1,219	1,569	
Month	45,942	41,238	41,230	36,450	38,099	40,479	43,209	43,152	50,820	44,950	36,570	48,639	510,778
PALO PINTO COUNTY—													
Daily average	474	488	447	415	467	453	445	396	422	354	394	381	
Month	14,694	14,152	13,857	12,450	14,447	13,583	13,801	12,276	12,660	10,974	11,820	11,811	156,555
SHACKELFORD COUNTY—													
Daily average	6,886	8,428	9,649	10,733	10,124	10,026	10,544	10,826	10,469	10,549	10,446	10,607	
Month	213,466	244,412	299,119	321,990	313,844	300,781	326,864	335,606	314,070	327,019	313,380	328,817	3,639,368
JONES COUNTY—													
Daily average	1,203	1,323	1,280	1,289	1,272	1,611	1,989	2,756	3,308	3,392	5,255	6,153	
Month	37,293	38,367	39,680	38,670	39,432	48,336	61,651	85,436	99,240	105,152	157,650	190,743	941,650
COLEMAN COUNTY—													
Daily average	1,282	1,698	1,914	1,470	2,818	2,875	3,398	3,663	3,614	3,335	3,330	3,884	
Month	39,742	49,242	59,334	44,100	87,358	86,251	105,330	113,553	105,420	103,385	99,900	120,404	1,014,019
RUNNELS COUNTY—													
Daily average	45	93	116	110	74	128	119	116	114	111	271	296	
Month	1,395	2,697	3,596	3,300	2,294	3,840	3,689	3,596	3,420	3,441	8,130	9,176	48,574
Daily average	45,250	47,531	47,259	47,405	47,649	49,103	49,041	48,476	52,753	47,672	48,790	50,589	48,459
Total 1928	1,402,754	1,381,096	1,465,029	1,422,150	1,477,119	1,473,111	1,520,247	1,502,756	1,582,050	1,447,832	1,463,700	1,568,259	17,736,103
Total 1927	1,949,063	1,903,412	2,245,702	2,109,300	2,192,351	1,967,640	1,705,558	1,597,523	1,519,230	1,548,698	1,464,750	1,403,029	21,606,256
Difference	546,309	522,316	780,673	687,150	715,232	494,529	185,311	94,767	62,820	70,866	1,050	165,230	387,015

Link-Belt Equipment f

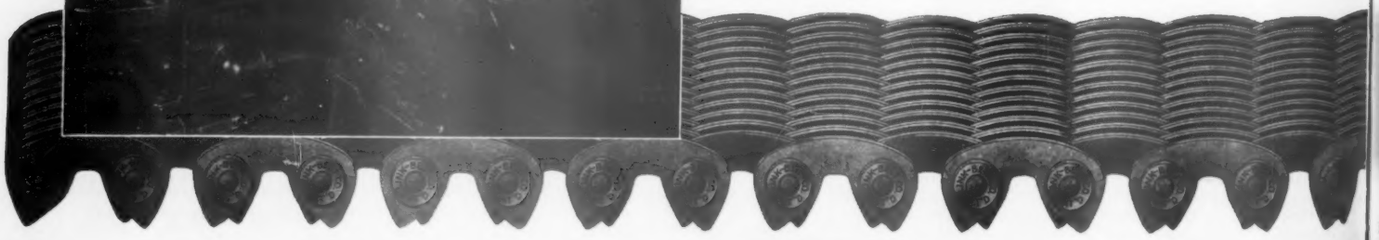


Hild Electrical Drilling Rig using Link-Belt SS-40+ (Plus) and SS-124+ (Plus) Rotary Chains.



Link-Belt "RC" Class Roller Chain operating Sand Reel.

Link-Belt Silent Chain operating pumping rig countershaft.



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Link-Belt "SS" Class Rotary Chains

Both (regular and plus chains) are well known throughout the oil fields for their efficient, reliable performance. They are standard equipment on a large proportion of drilling rigs. The detail dimensions of the parts of the regular and plus chains of corresponding numbers, are exactly the same, the greater strengths of the plus chains being secured by substitution of special alloy nickel steel for the pins, and special heat treatments for the side bars. All of the chains are provided with the famous Link-Belt "Curled Rollers", whose shock-absorbing resilience is an invaluable element in the long and satisfactory service secured.

Specify Link-Belt Chains—look for the famous double >——< arrow trade mark on every link. It is your guarantee that no matter what the conditions of service may be, the drilling will be done on schedule—the chain will endure—all of which has an important bearing on the cost of making hole.

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For years Link-Belt "RC" Class Roller Chain has demonstrated its durability in all kinds of severe service. It is standard equipment on some of the largest auto trucks, and this service has proved that the chain can stand shocks and strains without impairing its efficiency.

Send for a copy of Link-Belt Roller Chain Data Book No. 257.

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The success of the Link-Belt Silent Chain, as the ideal drive from motor to the first countershaft, is due to the superiority of its joint construction. The segmental liners extend across the entire width of the chain, thus doubling the bearing surface and halving the bearing pressure on the joint. The bushings are case-hardened and bear upon the case-hardened pin. The latter is free to, and does, rotate. As a result it wears uniformly and the chain maintains to the end its high initial efficiency.

Link-Belt Silent Chain is Flexible as a Belt—Positive as a Gear—More Efficient than Either. Made in sizes from 1/4 to 1000 H. P. and over. Drives 1/2 to 60 H. P. carried in stock. Send for Data Book No. 125 and Stock List No. 725.

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Complete description and information on other products, such as Ruf-Nek Pumping Unit, Oil Well Countershaft, Speed Reducers, and Meeseco Short-Center Belt Drives, will be sent on request.

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came into prominence. The discovery of a 500-foot pay there with wells yielding an initial production of sometimes several hundred barrels resulted in that county being literally dotted with spudders. All told there was a total of 584 wells put down in this county during the year. Of this number 250 were producers and 334 were dry holes. Most of these dry holes were shallow tests. North Central Texas reported 3,904 completions during 1928 and one-third of these were dry holes. The 1,845 oil producers had a combined initial production of 211,492 bbls. Brown County had the most completions of any county in North Central Texas. More than 600 wells were completed.

Panhandle's Gas Prominence

As Panhandle continued to decline in oil production it forged ahead as one of the greatest gas producing areas in the world. Panhandle's daily average production has declined from 80,000 bbls. daily to 58,500 bbls. daily. Most of this loss is in Hutchinson County, which is down around 27,600 bbls., whereas a year previously it was producing 52,700 bbls.

No new pools were discovered in Hutchinson County last year and the old producers have been steadily declining for the past 12 months. Carson County also went through the year without any new pools and lost 2,000 bbls. in daily average production. Wheeler County, with its one pool, contributed slightly to the decline of the Panhandle daily average.

Moore and Gray Counties each had new producing territory added within its borders and the production of the counties show substantial gains. Gray County gained approximately 3,000 bbls. and Moore County made a 2,400-bbl. gain.

Discoveries in Gray County

The Lefors area was the outstanding find in Gray County and was largely the reason for Gray County being the most active one in the Panhandle in 1928 and at the opening of the new year. The initial wells in Lefors indicated the possibility of a major pool being developed. However, the erratic conditions there changed the outlook almost every week, and at the end of the year it did not appear so threatening. Intrusion of bottom hole water also dampened the hopes of operators in that territory.

Several good wells have been completed in Lefors and at the opening of the new year a 2,400-bbl. high gravity producer revives hopes of obtaining more big flush production. The Chapman area southeast of Lefors had much the same history of Lefors. Its discovery well came in making better than 4,000 bbls. of high gravity crude. Its offsets, however, were big disappointments.

Late in the fall Skelly Oil Co. discovered the Armstrong Pool in central eastern Moore County near the Hutchinson County line. The discovery well performance revived interest in Moore County and created a small size drilling campaign. Two others wells have been completed in the pool and both had good initial production.

Coupled with this discovery, the showings encountered in other wells on to the west and northwest encouraged operators to make quite an extensive wildcat play to the west and northwest. It is expected that most of the wildcat work outside of Gray County will be on northwest from the Armstrong Pool.

The expansion of the gas industry in the Panhandle was one of the most important developments of the year. Five transportation companies are transporting Panhandle gas to six states. All of the construction work on transmission systems started in 1927 has been completed and the lines in operation.

Closely related is the expansion of the carbon black industry and Panhandle is now the leading carbon black producing center in the world. At the first of the year the entire Panhandle Districts had 19 plants in operation and their capacity aggregated 284,000,000 feet of gas daily. At this time the consumption of those plants was approximately 287,000,000 feet daily. Total capacity of the carbon black plants in the Panhandle will be increased 92,500,000 feet daily upon completion of new units being installed and completion of the new plants now being built.

The bulk of the gas being consumed by the carbon black plants would otherwise be wasted. It is coming mostly from the many gasoline plants which heretofore had been disposing of the residue in other manners. It is estimated that carbon black production in the Panhandle will average from 1¼ to 1½ pounds per 1,000 feet of gas.

A CLOSE-UP VIEW OF THE WORLD'S GREATEST SHALLOW SAND OIL POOL

By James H. Dameron

Since its discovery the Yates Pool in Pecos County, Texas, has produced less than 5 per cent of its enormous estimated potential production, and with such a restriction throttling it Yates had a recovery of 28,109,220 bbls. since its discovery in October, 1926, to December 31, 1928.

No other pool in West Texas compares with it in sensational wells for it has the biggest shallow producers in the world. Half a dozen of its 277 wells are rated as producers capable of making better than 100,000 bbls. in one day and 23 of its producers are rated at 50,000 bbls. or better.

Yates will produce around 30,000,000 bbls. during 1929 if the present plans of the operators are adhered to. There seems to be no desire on the part of the operators to lift the lid off Yates and 100,000 bbls. daily is the maximum allowed production at present. This figure may be raised or even lowered, depending on the crude market.

Mid-Kansas Oil & Gas Co. and Transcontinental Oil Co., discoverers of the Yates Pool, have the greatest recovery of any of the companies in that field. Their joint production since discovery totals approximately 11,839,018 bbls. The California Co. has the next highest recovery with 3,800,966 bbls., while the Gulf Production Co. ranks third with 3,126,199 bbls.

(Continued on Page 282)

GROSS NET OIL PRODUCTION PECOS COUNTY SINCE DISCOVERY TO JANUARY 1, 1929

Company, farm—	Sec.	Blk.	Wells	Month Prodn. began	December Prodn.	Total Prodn. to Jan. 1	Company totals
California Co.:							
Yates—Lease 1	34	194	17	Oct., 1927	169,694	2,511,694	
Smith—Lease 1	27	194	3	Jan., 1928	12,238	.....	
Smith—Lease 1	23	194	4	Jan., 1928	20,088	159,099	
Smith—Lease 2	26	194	2	July, 1928	6,076	21,132	
Smith—Lease 3	35	194	12	Oct., 1927	48,546	1,110,546	
Tippett—Lease 1	2	1	1	Oct., 1928	1,178	2,495	3,800,966
Cosby Drlg. Co.:							
M. A. Smith	24	194	1	.....	6,913	29,913	29,913
Gulf Prod. Co.:							
All leases	...	...	32	....	287,091	3,126,199	3,126,199
Humble O. &R.:							
M. A. Smith	36	194	10	.....	42,500	736,000	
Smith-B	101	194	5	.....	19,437	419,141	1,155,141
Kirby Pet. Co.:							
J. H. Tippett	40	194	1	Apr., 1928	2,015	14,066	14,066
Kirby Pet. & Edson:							
J. H. Tippett	108	194	1	Dec., 1928	6,014	77,014	77,014
Marland Oil Co.:							
Yates-A	60	1	10	.....	29,636	491,636	491,636
Matador Oil Co.:							
Smith	24	194	2	July, 1928	23,436	91,436	91,436
Mazda & Savoy:							
Smith	24	194	2	Nov., 1927	11,931	119,469	119,469
McMan O. & G.:							
Smith-A	104	194	1	.....	16,399	194,834	
Smith-B	104	194	4	.....	33,356	345,356	
Smith-C	25	194	2	.....	8,122	39,122	
Tippett	107&108	194	3	Feb., 1928	7,874	112,478	691,790
McMan & Marland:							
Yates	34½	194	17	.....	86,521	1,830,737	1,830,737
Mid-Kans.-Transc.:							
Yates-A	34½	194	24	Dec., 1926	273,482	3,907,482	
Yates-B	61	1	25	Feb., 1927	139,562	2,700,858	
Yates-C	60	1	10	May, 1927	130,386	1,244,000	
Yates-D	62	1	6	Oct., 1927	167,276	1,108,276	
Yates-E	59	1	1	Nov., 1927	3,565	50,872	
Yates-F	63	1	4	Feb., 1928	19,995	159,995	
Yates-G	34½	194	4	Apr., 1928	31,558	246,558	
Yates-H	32	194	7	Aug., 1928	168,888	655,072	
Smith	31	194	2	Jan., 1928	24,366	88,633	
Smith-Taylor	33	194	18	May, 1927	78,306	1,677,222	11,839,018
Oil Ops. Trust:							
River Bed	...	...	7	.....	23,033	282,033	282,033
Pecos Ops. Oil:							
Fee	...	...	1	.....	3,379	226,633	226,633
Phillips Pet. Co.:							
Smith	39	194	1	Mar., 1928	1,829	25,741	25,741
Red Bank Oil Co.:							
Smith	24	194	4	.....	9,145	142,145	142,145
Shell Pet. Corp.:							
Tippett	102	194	11	.....	55,600	1,193,600	
Smith	27	194	9	.....	55,800	421,800	
Smith-B	24	194	1	.....	21,514	75,514	
Smith-D	24	194	2	.....	11,470	46,870	1,737,784
Simms Oil Co.:							
Smith	103	194	7	Sept., 1927	147,994	1,817,994	1,817,994
Skelly Oil Co.:							
Tippett	108	194	1	.....	3,193	30,193	30,193
Texon O. & L.:							
Yates	...	...	.	.....	Off	Off	
Grand totals	...		277		2,209,406	28,109,220	28,109,220

NORTH CENTRAL TEXAS COMPLETIONS BY COUNTIES YEAR 1928

County—	Comp.	Prod.	Dry
Archer	189	13,841	267
Brown	618	28,606	279
Burnet	1	.....	1
Callahan	117	814	76
Clay	23	84	12
Coleman	247	7,839	142
Collin	1	.....	1
Comanche	14	112	7
Cooke	50	599	27
Denton	5	.....	5
Eastland	214	15,097	106
Erath	8	.....	4
Foard	6	.....	5
Grayson	4	.....	3
Jack	64	1,453	46
Haskell	6	46	5
Hardeman	2	.....	2
Knox	2	.....	2
McCulloch	16	.....	13
Montague	97	2,291	17
Parker	2	.....	2
Palo Pinto	34	97	21
San Saba	1	.....	1
Shackelford	275	15,728	92
Stephens	82	2,017	39
Throckmorton	35	534	21
Wichita	520	14,962	189
Wilbarger	386	92,800	94
Wise	1	.....	1
Young	584	14,572	235
Total 1928	3,904	211,492	1,810

NORTH CENTRAL TEXAS COMPLETIONS BY MONTHS

	Comp.	Prod.	Dry
January	180	7,513	83
February	260	11,189	108
March	363	15,604	165
April	346	14,588	165
May	356	11,664	185
June	412	28,881	190
July	290	28,888	129
August	357	33,346	165
September	307	16,304	146
October	343	14,862	156
November	368	13,510	173
December	322	14,642	145
Total 1928	3,904	211,492	1,810
Total 1927	3,711	285,414	1,646
Difference	193	73,922	164

TEXAS PANHANDLE COMPLETIONS BY COUNTIES YEAR 1928

County—	Comp.	Prod.	Dry
Armstrong	1	.....	1
Baily	2	.....	2
Carson	24	1,380	2
Dallam	3	.....	3
Donley	1	.....	1
Floyd	2	.....	2
Gray	206	57,631	35
Hale	6	.....	6
Hansford	2	.....	2
Hartley	5	.....	4
Hemphill	2	.....	2
Hutchinson	66	6,832	3
King	2	.....	2
Lipscomb	5	.....	5
Moore	7	2,236	...
Motley	2	.....	2
Ochiltree	5	.....	5
Oldham	1	.....	1
Potter	9	.....	9
Randall	1	.....	1
Roberts	1	.....	1
Sherman	2	.....	2
Swisher	1	.....	1
Wheeler	41	75	1
Total 1928	396	68,148	89

COMPLETIONS BY MONTHS

Month—	Comp.	Prod.	Dry
January	18	6,690	1
February	26	9,214	1
March	26	4,925	21
April	38	9,692	12
May	27	1,835	5
June	40	6,625	10
July	35	2,503	7
August	45	5,253	7
September	22	2,385	4
October	35	13,226	6
November	34	2,974	6
December	31	2,826	9
Total 1928	396	68,148	89
Total 1927	404	178,054	87
Difference	408	109,906	2

Texas Panhandle

Daily Average and Monthly Production in 1928

	January (bbls.)	February (bbls.)	March (bbls.)	April (bbls.)	May (bbls.)	June (bbls.)	July (bbls.)	August (bbls.)	September (bbls.)	October (bbls.)	November (bbls.)	December (bbls.)	Total (bbls.)
HUTCHINSON COUNTY—													
Daily average	50,218	50,857	44,240	40,354	41,508	37,018	35,721	34,016	32,527	30,292	29,022	28,429	
Month	1,556,758	1,474,853	1,371,440	1,210,620	1,286,748	1,110,546	1,107,356	1,054,496	975,810	939,052	870,660	881,299	13,838,7
CARSON COUNTY—													
Daily average	7,649	7,470	7,226	7,191	7,220	6,655	6,299	6,533	6,284	6,357	5,422	5,682	
Month	237,119	216,630	224,130	215,730	223,820	199,657	195,269	202,523	188,520	197,067	162,660	176,142	2,439,3
GRAY COUNTY—													
Daily average	18,611	19,482	20,058	19,261	18,296	20,687	20,565	20,965	22,366	27,162	25,150	22,951	
Month	576,941	564,978	621,798	577,830	567,176	620,606	637,514	650,039	670,980	842,022	754,500	711,481	7,795,8
MOORE COUNTY—													
Daily average	.....	.....	.....	305	146	165	194	704	1,282	1,916	2,455	2,947	
Month	.....	.....	.....	9,150	4,526	4,957	6,014	21,824	38,460	59,396	73,650	91,357	309,3
POTTER COUNTY—													
Daily average	30	25	10	19	22	23	22	29	17	15	34	21	
Month	930	725	326	570	682	689	693	899	516	465	720	651	7,6
WHEELER COUNTY—													
Daily average	1,181	1,049	1,145	1,004	1,047	968	863	985	761	754	784	755	
Month	36,611	30,421	35,495	30,120	32,457	29,035	26,749	30,535	22,830	23,374	23,520	23,405	344,5
Daily average	77,689	78,883	72,683	68,134	68,239	65,516	63,664	63,236	63,237	66,496	62,857	60,785	
Total 1928	2,408,359	2,287,607	2,253,173	2,044,020	2,115,409	1,965,484	1,973,595	1,960,316	1,897,116	2,061,376	1,885,710	1,884,335	24,736,6
Total 1927	4,004,052	3,528,280	3,654,590	3,749,610	4,174,181	3,814,380	3,459,910	3,071,790	2,882,640	2,735,719	2,488,530	2,626,097	40,669,7
Total 1926	187,077	152,264	245,624	393,860	876,897	1,430,400	2,023,742	2,973,848	3,421,890	4,534,339	4,595,220	4,741,326	25,546,8

*New oil wells

XUM

Increase in Work in Old Central West

But It Was Confined to the Central Ohio Field Which Developed Many Good Gas Wells. New Pool in Northern Ohio

By George A. Whitney
Staff Correspondent, Central West Fields

A prosperous year has passed in the Central West Field comprising the Lima Field of northwestern Ohio, Central Ohio, Indiana and Illinois, where a healthy increase is shown in the combined four divisions of completed wells for 1928. Central Ohio is the only one of the four divisions that shows an increase in completed work, the other three divisions having a slight falling off in the number of new wells brought in. In these divisions the year under review shows an increase over the 1927 figures of 152 completions, 3 fewer oil wells, with a gain of 2,794 bbls. in new production; 65 more dry holes and 85 more gas wells. The total completions for 1928 in these divisions numbered 1,264, of which 482 were oil wells with an initial production of 14,493 bbls.; 377 dry holes and 405 gas wells. The Lima Field is credited with a larger initial production than in 1927, due to the opening of the Murphy Pool, in Liberty Township, Seneca County, where some excellent wells were found. Indiana and Illinois both showed a decrease in initial production.

During the year 593 old producing wells were abandoned in the Lima, Indiana and Illinois fields against 543 for 1927, an increase of 50.

During the latter part of 1928 the gas companies operating in the Central Ohio fields finished a vast number of wells, the activity starting in July and continuing to the close of the year. Big plans for development in this area for 1929 have been made and many advance tests will be drilled over the vast and virgin areas of that part of Ohio. The bringing in of a wildcat gas well in Ashtabula County, Southwest of Conneaut, indicates the possibility of a new pool Gas operators are also paying some attention to the possibilities of the development of a good gas field on the Lost Dome structure near Forest, in Hardin County, Ohio, in advance of the old Patterson Gas Field of more than 30 years ago. The gas in that field was so strong with sulphur, that, direct from the well, it could hardly be utilized for fuel, but a sweetening plant, makes the gas equal to any found in Ohio. There is a vast territory there yet to be developed.

One feature of the year is that the market price of crude remained steady and all old and new wells were pumped to their capacity. Oil men are feeling that, to a great extent, they have enjoyed a prosperous year, even in territory where small pumpers were found. The cost of operations is not unduly heavy in the Trenton formation in the Lima Field, nor in Indiana and Illinois, but expensive in Central Ohio due to the great depth required to find either oil or gas.

CENTRAL WEST SUMMARY
Result of Field Operations in 1928 in Four Divisions

Field—	Comp.	Prod.	Dry	Gas	Abd.	(*)
Lima	204	6,098	55	19	454	130
Central Ohio	717	4,282	187	340	0	190
Indiana	206	2,420	82	33	94	86
Illinois	137	1,693	53	8	45	76
Total 1928	1,264	14,493	377	405	593	482
Total 1927	1,112	11,699	312	315	543	485
Difference	152	2,794	65	85	50	3

*New oil wells.

LIMA

In the old Lima Field of northwestern Ohio there was no spurt of activity during the year outside the new field north of Tiffin, known as the Murphy Pool, in Liberty Township, Seneca County, which was overlooked 30 years ago when the Tiffin Field was booming. Some remarkable wells were found in this pool in 1928 but many of them became troubled by salt water, of which there has always been a plenty in the Trenton formation. Some of the wells started at better than 1,000 bbls. a day, and caused the drilling of many holes resulting in a good percentage of dusters on the outer edges of the pool which covered only a small area. Northeast of Lima, in Bath Township, Allen County, some very good producers were found, and they are not so much troubled by the water as the wells in the Murphy Pool.

Murphy Pool Opened

In April, a sensational well was struck by J. H. Murphy & Son, in what became known as the Murphy Pool in Liberty Township, Seneca County, in No. 1 on the Joseph Swartzmiller farm, in the NW Section 28, with an initial production of 400 bbls. Trenton was topped at 1,350 feet and drilled 154 feet in the sand to a total depth of 1,504 feet. T. G. O'Brien's test on the Joseph Sentelbach farm, SE Section 28, produced an initial of 80 bbls., at a depth of 1,493 feet or 159 feet in the Trenton.

Murphy & Son's second test near the northeast corner of the Joseph Swartzmiller farm, completed in June, produced an initial of 350 bbls. in 24 hours from a total depth of 1,345 feet, or 51 feet in that formation. In the same month Muncy Valley Oil & Gas Co.'s No. 2 Joseph Kimmett, Section 28, same township, showed considerable salt water, but produced an initial of 100 bbls. of oil a day. Wittmer Oil & Gas Properties drilled a test in advance of production on the L. Seiger farm, SE Section 15, Cynthian Township, Shelby County. The well pumped 10 bbls. and makes quite an area of territory look good for small producers.

In July, B. L. Carman and others made one of the best strikes in the western portion of the Lima Field during the middle of the summer season when they drilled in their test on the E. T. McCarey farm, known as the J. C. Driver farm, on the oil map, in the N half of Section 13, Bath Township, Allen County, which produced an initial of 100 bbls. from 1,369-1,410 feet. The best well drilled in the Trenton rock field for a number of years was brought in by the Muncy Valley Oil & Gas Co. in No. 5 on the Joseph Kimmett Section 28, Liberty Township, Seneca County, with an initial production of 1,200 bbls. at a total depth of 1,396 feet or 70 feet in the sand. This well was shot with 120 quarts. In the same pool, J. H. Murphy & Son's No. 1 J. H. Hunker farm, NW Section 28, same township, produced 200 bbls. initial from 80 feet of sand at a total depth of 1,394 feet. M. C. Newton and others' test on the Minnie M. Snider farm, SE Section 14, Bath Township, Allen County, produced 40 bbls. initial at 1,411 feet.

In August three good producers were brought in in Liberty Township, Seneca County, the best of the trio being J. H. Murphy & Son's No. 3 on the Joseph Swartzmiller, Section 28, for an initial of 350 bbls. at 1,390 feet or 56 feet in the sand. Whitemore and others' second test on the D. H. Connor farm, Section 28, produced 140 bbls. at 64 feet in the Trenton at a total depth of 1,371 feet, and the Muncy Valley Oil & Gas Co.'s No. 6 Jacob Kimmett, same section showed an initial of 125 bbls. at 32 feet in the sand at a total depth of 1,345 feet. A dozen wells on this latter farm totaled close to 1,500 bbls. a day in August.

In September, the Muncy Valley Oil & Gas Co. drilled a 200-bbl. initial producer in No. 8 on the J. Kimmett, Section 28, Liberty Township, Seneca County, at 1,391 feet, and but 86 feet in the Trenton. In the same field and section, J. H. Murphy & Son's No. 4 Swartzmiller, produced 150 bbls. Ten dry holes were found around this pool during the month which was very discouraging to the operators who paid a fancy price for leases. In an attempt to extend the rich pool into Hopewell Township, same county, four dry holes were found in Sections 7, 9 and 11. M. C. Newton and others drilled a test on the Charles Deaubler, Section 14, Bath Township, Allen County, getting a 30-bbl. initial pumper at 1,402 feet.

In October, H. F. Kelley and others drilled a test on the Hudson Theet, in the SE Section 12, Bath Township, Allen County, that produced 25 bbls. natural at 1,366 feet. Brookside Oil Co.'s test on the H. W. Neemeyer, NW Section 29, Washington Township, Auglaize County, produced 25 bbls. at 1,224 feet, which extended production limits for close to a mile.

In November, Marshall Brothers found a 100-bbl. initial producer at a second test on the August Fleckner, in the NW Section 27, Liberty Township, Seneca County and southeast of the Murphy Pool, close to a mile. This farm is known on the oil map as the K. Skranswefky farm. Catawba Oil & Gas Co. hit a 500,000-foot gas well at a test on the C. M. Seeger farm, SW Section 24, Catawba Township, Ottawa County. Trenton was topped at 1,887 feet and drilled 101 in the sand to a total depth of 1,988 feet.

In December, the Bath Township Oil Co. drilled a test on the Ann Henry farm, NE Section 14, Pleasants Township, Hancock County and in the vicinity of the town of McClure, which topped the Trenton at 1,425 feet; drilled 265 feet in the sand to a total depth of 1,690 feet, producing 50 bbls. Kurtz Gas Co.'s test on the Aaron McKinley farm, in Jackson Township, Hardin County, was reported with a volume of 3,000,000 feet of gas at a total depth of 1,252 feet.

LIMA FIELD
Summary of Wells Completed in Northwestern Ohio in 1928

Month—	Comp.	Prod.	Dry	Gas	Old Wells Abd.
January	11	174	1	2	1
February	17	63	3	7	18
March	11	214	1	1	66
April	13	590	3	2	59
May	9	490	2	0	54
June	13	621	1	0	87
July	22	1,754	6	0	46
August	21	820	6	0	32
September	29	633	14	0	9
October	27	428	8	2	41
November	16	204	3	4	7
December	16	107	7	1	34
Total 1928	204	6,098	55	19	454
Total 1927	262	2,973	35	16	419
Difference	58	3,125	20	3	35

Summary by Counties

County—	Comp.	Prod.	Dry	Gas	Abd
Wood	24	177	7	1	123
Hancock	14	263	2	1	102
Allen	28	792	1	0	69
Auglaize	16	179	3	0	16
Sandusky	6	31	0	1	65
Mercer	8	58	0	2	38
Van Wert	3	27	0	0	6
Seneca	72	4,344	36	1	9
Lucas	2	0	1	1	7
Ottawa	5	69	0	2	5
Shelby	6	56	2	0	0
Hardin	10	50	0	8	0
Darke	4	50	0	1	3
Wyandot	6	2	3	1	0
Paulding	0	0	0	0	11
Total	204	6,098	55	19	454

CENTRAL OHIO

The Central Ohio Field for 1928 made a comeback over 1927, with an increase of 274 completed wells, 112 more producers, 1,576 bbls. increase in initial production, 82 more dry holes and 80 more gas wells. Increased activity commenced to show in August and from that time until the close of the year development work was rushed to such an extent that Central Ohio leads the other three divisions of the Central West by a huge majority in all branches of the field development.

The best oil well reported from the field for the season, was found on the Helphrey farm, in Jackson Township, Muskingum County, and the best gas well was struck on the Lloyd Bliler farm, in Franklin Township, Summitt County, with an open flow of 8,000,000 feet. Late in the season a gas field southeast of Ashtabula and southwest of Conneaut, in Ashtabula County, in the extreme northeastern corner of the state, and reported for better than a million cubic feet. This test indicates that either gas or oil can be found in most any of the counties from Columbus to the Pennsylvania line, with millions of acres yet virgin territory.

Of the 340 gas wells completed in the Central West area 27 average over 3,300,000 feet of initial flow, the 27 wells having been credited with a total initial production of 90,630,701 feet. Altogether it was a good year for the gas producers and assured consumers a continuation of good service throughout the winter.

Feature Wells

In January the Empire Gas & Fuel Co. drilled a 160-bbl. well in No. 6 on the Delpha Nethrow farm, Lot 10, Hardy Township, Holmes County, and the Preston Oil Co., a 150-bbl. initial producer in a test on the Wilson 126 acres, Section 14, Perry Township, Coshocton County. Hulse & Kundtz drilled a test on the A. W. Eldred farm, Lot 29, Olmstead Township, Cuyahoga County, in the Cleveland Field, which produced a volume of 3,300 000 feet of gas from the Clinton lime.

In February, Burton, Morgan and others' No. 3 on the George Schuler, Lot 14, Hardy Township, Holmes County, produced 110 bbls. from the deep sand. Hulse & Kundtz drilled a test on the William Loder, Lot 7, Strongville Township, Cuyahoga County, getting a 10-bbl. pumper at 3,009 feet.

In March, Mohican Township, Ashland County, attracted much attention with paying producers in the Berea sand at depths around 600 feet. The pool is near the town of Jeromesville.

Harmon & George drilled a test on the J. M. Wolfe, Section 3, Mohican Township, Ashland County, in April, getting 66 feet of Berea sand between 559 and 625 feet, that produced 20 bbls. Reeve & Lonshier drilled a wildcat on the J. C. Pond farm, on Butternut Ridge, in Olmstead Towship, Cuyahoga County, getting a 15-bbl. producer from the Newburg sand.

A gas well, which was a test on the W. A. Sharp farm, Section 20, Hanover Township, Ashland County, produced in June an initial volume of 3,888,701 feet.

Whitehill Gas Co.'s test on the Albert Ashcraft, Section 2, Perry Township, Licking County, completed in August, showed 85 bbls. initial oil production. In Jackson Township, Muskingum County, the Pure Oil Co.'s No. 3 John Hoover, Section 6, was credited with 130 bbls. initial and same company's No. 3 George Crawford, Lot 31, same township, with an initial of 80 bbls.

The Preston Oil Co.'s test on the S. G. Rine, Section 20, Monroe Township, Knox County, in September produced an initial of 27 bbls. from the shallow Berea sand. The Pure Oil Co.'s test on the Henry Loughman, Section 1, Hopewell Township, Licking County, started at 225 bbls. from the Clinton lime at from 3,078-3,125 feet.

Pure Oil Co.'s second test on the C. B. Anderson, Section 20, Pike Township, Coshocton County, in October, produced 108 bbls. initial at from 3,019-65 feet.

The East Ohio Gas Co.'s No. 2 Lloyd Bliler, Section 27, Franklin Township, Summit County, was rated at 8,000,000 feet, and the largest gasser of the year. It was completed in November. In Muskingum County, Jackson Township, the second test of the Hope Construction

& Refining Co., on the W. E. Helphrey, Section 6, showed an initial production of 257 bbls., while the Pure Oil Co.'s test on the Zonetta Brown, same section, produced an initial of 130 bbls.

The wildcat well of Shaffer Brothers Gas Co. on the J. B. Ring in Ashtabula County showed better than 1,000,000 feet of gas at 2,710 feet. Mid-East Oil Co.'s test on the William McKnight, Section 15, Perry Township, Licking County, produced an initial of 87 bbls. This well was drilled to the Clinton lime at a depth of from 4,003-58 feet, where the good production was found.

CENTRAL OHIO
Summary of Wells Completed in 1928

Month—	Comp.	Prod.	Dry	Gas
January	28	353	7	15
February	23	128	5	14
March	27	260	12	7
April	15	36	4	9
May	29	313	7	17
June	28	143	10	13
July	14	0	2	12
August	87	349	19	47
September	113	407	35	54
October	113	634	26	55
November	114	901	28	41
December	126	759	32	56
Total 1928	717	4,282	187	340
Total 1927	443	2,706	105	260
Difference	274	1,576	82	80

Summary by Counties

County—	Comp.	Prod.	Dry	Gas
Ashland	113	422	40	48
Medina	38	43	14	18
Lorain	21	0	6	15
Wayne	47	30	18	28
Holmes	47	393	13	25
Cuyahoga	41	350	10	26
Richland	5	0	2	3
Knox	27	215	6	16
Coshocton	32	831	7	13
Ashtabula	1	0	0	1
Summitt	34	0	6	28
Licking	87	972	13	13
Muskingum	21	718	6	6
Athens	86	31	17	57
Meigs	30	178	13	9
Jackson	20	0	2	18
Vinton	6	18	2	1
Stark	7	30	4	2
Lawrence	4	0	1	3
Gallia	10	3	2	7
Tuscarawas	2	0	2	0
Fairfield	6	5	2	2
Guernsey	11	43	0	7
Portage	1	0	1	0
Total	717	4,282	187	340

Indiana

The bulk of the development work in Indiana during 1928 fell to the wildcatter and very little new territory was opened. There were 206 wells completed of which 82 were dry holes, 38 gas wells, 86 were producing wells with an initial production of 2,420 bbls., which makes the producing wells show an average of a little over 28 bbls. to the well. When compared with the work during 1927 this shows a decrease of 40 in completed wells, 25 fewer dry holes, 7 more gas wells and 1,356 bbls. less initial production. There were 94 old wells abandoned during the year, an increase of 7 over 1927. Gibson County in the southwestern part of the state was the outstanding point of development during the year, with 42 completions of which 19 were dry, 5 were gas wells, and 18 producing wells, with an initial production of 550 bbls. Sullivan County, which is far north of the Gibson County Field, was second with 28 completions, 18 producers with an initial production of 503 bbls., 9 dry holes and 1 gas well. Vigo County, which adjoins the Sullivan County area on the north shows 27 completions, 24 producers with an initial of 975 bbls.. and 3 dry holes. Pike County, which joins Gibson County and which held second position for 1927, came in fourth in 1928 with 21 completions, 7 producing wells with an initial production of 180 bbls., 10 dry holes and 4 gas wells.

Spencer County was added to the list of oil producing counties during 1928 and has prospects of making a fair producing area, being just across the Ohio River from the Owensboro, Ky., fields. This is a wildcat proposition and 16 wells were reported completed with 7 producers and 93 bbls. initial production, 8 dry holes and 1 gas well.

Early in the year there was a rush for territory in the northwestern part of the state, in the Kankakee Valley, and a vast area was taken under lease. Over 30 years ago some old wells were drilled in the Francisville area of Pulaski County, finding the Trenton formation between 900 and 1,000 feet with excellent showings, but for lack of transportation for the crude no market was had for the oil and these wells were given up. The wells were neglected and the supposition is that they were not properly plugged and the two wells drilled in Pulaski and Jasper Counties during the year in review showed conclusively that the oil had been drowned out by fresh water and both tests found the fresh water in the Trenton and salt water in the Niagara lime above the Trenton. Had these tests proven productive it would mean the opening of what might have been another great Trenton Rock producing area, similar to the one in the northeastern part of Indiana and in northwestern Ohio. The supposition is that the entire Kankakee Valley under which the Trenton lies will be found of little value for oil for the reason given. In Jasper County many shallow wells were drilled in the early days by an English syndicate and natural lubricating oil found at depths varying from 60 to 500 feet, there having been close around 1,300 of these shallow holes drilled and today many of them have oil standing in the casing after the field has been abandoned for 30 years. This natural lubricant found sale in Chicago. Farmers throughout that country use the oil for any greasing purpose for farm implements as well as automobiles. The shallow sand was not affected with the fresh water outside of what would get into the pipe from rains as none of them are shut in.

Extending Old Territory

The first month of 1928 started well toward gathering good production in advance of development when Baldridge, Whittier and others drilled in a test on the Charles Scott farm, Section 6, Fairbanks Township, Sullivan County, for 60 bbls. initial production. In the same township, Bays and others' test on the J. Mayfield, Section 5, showed 40 bbls. Bell and others' test on the Jess Lindy farm, Survey 9, Clay Township, Pike County, opened up a slight extension in a 25-bbl. initial producer at from 1,297-1,309 feet.

In April, the Big Four Oil & Gas Co. got a 70-bbl. initial producer in a test on the J. Jones, in the NE Section 19, Washington Township, Gibson County, at 1,672 feet, in 8 feet of sand. This well flowed its oil.

In May, the Texana Oil Co. drilled a test in the northwest corner of the K. L. Crackel, in the SW Section 6, Washington Township, Gibson County, extending the Olympus Pool a short distance, the oil being found at a depth of 10 feet in the sand at a total depth of 1,571½ feet. Wiser Oil Co.'s wildcat on the T. E. Larkin, Section 8, Ohio Township, Spencer County, got top of sand at 986 feet and oil at 2 feet in the sand.

In July, the Siosi Pool, in Prairie Creek Township, Vigo got a slight extension when Pierce and others brought in a 60-bbl. initial well in a test on the Pearl Shattuc, Section 32, at 2,258 feet. Arco Oil & Gas Co.'s wildcat on the Alonzo C. Bolen, in Stark County, in the Kankakee Valley, was dry at 1,266 feet.

Natural Producer

In August, Mann & Huber brought in another natural producing well on the Dave Hutchison farm, Section 13, Center Township, Gibson County, in No. 5, that produced 100 bbls. at 1,430 feet. Texana Oil Co.'s test on the Sam Mitchell, Section 32, same township, produced a volume of 1,750,000 feet of gas with a rock pressure of 800 pounds at 1,707 feet.

In September, H. G. Darby and others' test in the northwest corner of the Russell Kime, in the NW Section 26, Logan Township, Pike County, produced 25 bbls. after a 40-quart shot at 1,314-35 feet. Hoosier Public Utilities Co. drilled in six average gas wells near Greensboro, in Decatur County. Arco Oil & Gas Co. drilled a dry hole in a wildcat on the Drummond farm, Section 17, California Township, Starke County, in the Kankakee Valley.

In October, the Roxana Petroleum Co. drilled a test on the Ranford Corn, NE Section 22, Columbia Township, Gibson County, getting a 5,400,000-foot gas well and 35 bbls. of oil at a depth of 1,425 feet. Big Four Oil & Gas Co.'s No. 1 Charles White, Section 18, Washington Township, same county, produced an initial of 10 bbls. from 1,274 feet. Final Ziegler drilled a rank duster in a on the J. Lang, SE SW Section 35, derson Township, Warrick County 1,230 feet.

In November, Randall & Rogers' on the John Williams, in SE Section Barton Township, Gibson County, p 1,323 feet, making additional territory inviting. Gem Oil Corp.'s No. 4 on August Yeager, in SW Section 9, M roe Township, Pike County, was report for a volume of close to 5,000,000 feet gas at a shallow depth of 249 feet. Michigan-Ohio Oil Co., of Toledo, Oh and South Bend, Ind., drilled a wild well on the Bennett Taylor 160-acre, SW Section 17, Salem Township, Pula County, upon a block of more than 14,0 acres, and was rewarded with a fr water gusher in the Trenton sand at cl to 1,000 feet deep. This well is a mi or so from a big gas well that flow wide open for more than 15 years an only about 1½ miles southwe of two oil wells that were drilled in th town of Francisville. One of these wel on a church lot in the town, still has hole almost full of crude and it is bail out during the summer months and th oil used on the streets.

INDIANA
Summary of Wells Completed in 1928

Month—	Comp.	Prod.	Dry	Gas	Old Wells Abd
January	17	463	3	9	
February	16	185	6	5	1
March	13	143	5	5	
April	7	78	5	0	
May	16	263	6	2	
June	19	341	6	2	
July	17	165	6	3	
August	23	220	15	2	1
September	26	272	10	9	
October	17	95	7	5	
November	16	161	5	5	
December	19	154	8	2	1
Total 1928	206	2,420	82	38	3
Total 1927	246	3,776	107	21	7
Difference	40	1,356	25	7	

Summaries by Counties

County—	Comp.	Prod.	Dry	Gas	Old Wells Abd
Jay	10	30	7	0	
Adams	5	56	0	0	
Gibson	42	550	19	5	
Pike	21	180	10	4	1
Sullivan	28	503	9	1	
Daviess	5	18	3	0	
Vigo	27	975	3	0	
Grant	2	0	2	0	
Randolph	2	0	2	0	
Harrison	12	0	2	10	
Huntington	0	0	0	0	1
Wells	0	0	0	0	
Spencer	16	93	8	1	
Allen	3	0	1	2	
Martin	3	0	2	1	
Delaware	0	0	0	0	2
Lagrange	1	0	0	1	
Madison	1	10	2	1	
Rush	6	0	1	5	
Stark	3	0	3	0	
Floyd	1	0	0	1	
Perry	1	0	1	0	
Jasper	1	0	1	0	
Pulaski	1	0	1	0	
Marshall	1	0	1	0	
Steuben	1	5	0	0	
Warrick	1	0	1	0	
Decatur	6	0	0	6	
Crawford	1	0	1	0	
Blackford	2	0	2	0	
Total	206	2,420	82	38	3

Illinois

Illinois petroleum areas experienced a rather bad year in 1928, with but 157 completions, of which 53 were dry holes, 8 gas wells, and 76 oil wells, with an initial production of 1,693 bbls. Compared with the 1927 season this shows a decrease of 24 in completed wells, 551 bbls. less initial production, 12 less dry holes, and the same number of gas wells, and 12 less producing oil wells. Most of the development work for the year was close to old production, very few outside tests being made, the most important test of the year being found in St. Clair County on the western border of the state.

A deep test drilled on the Martin Wernz farm, Section 22, Darwin Township, Clark County, found a heavy flow of salt water at 2,288 feet. The log shows salt water sand at 835 feet; Mississippian system, Chester series found from 950 to 1,000 feet; Lower Mississippian system, lime series found at 1,050 to 1,775 feet, salt water being found at 1,085, 1,435 and 1,622 feet; Mississippian-Kinderhook shales from 1,805 to 2,105 feet; salt water sands at 1,923, 1,990 and 2,025 feet. The drill entered the Devonian

(Continued on Page 288)

OIL COMPANIES MADE PROGRESS TOWARDS FINANCIAL BETTERMENT

By A. E. Mockler
New York Bureau, The Oil and Gas Journal

Leading oil companies, particularly the large integrated corporations and those specializing in the refining and marketing end of the business, showed a material betterment in their financial position during the past year. While earning statements covering the entire year's operations are not yet available, reports for the first three-quarters of the year made by a number of companies, and earnings statements covering the first six months by companies which do not report by quarters, indicate that marked progress toward financial rehabilitation was made in the oil industry in 1928.

Producing companies, with the bulk of their revenue dependent upon the crude petroleum market position, showed some gains during the year in line with the higher crude oil market, although the improvement in this branch of the industry was by no means comparable in extent with that in the refining and marketing groups.

There were two noteworthy amalgamations consummated in 1928, with every indication toward the close of the year that still more important developments in that direction were pending.

Important Mergers

Numerous rumors of possible mergers were heard in oil and financial circles during the year. The first of these consolidations to be consummated involved merging of The Texas Corporation and the California Petroleum Co., the former acquiring control of the Pacific Coast organization through a deal involving the exchange of one share of The Texas Corporation for each two shares of California Petroleum.

The second important merger of the year occurred when the Richfield Oil Co. took over the Pan American Western Petroleum Co. through a stock interchange plan, thereby acquiring considerable additional crude production, as well as the refining, marketing, and tanker fleet organizations of Pan American Western.

During the closing quarter of the year the Pacific Western Oil Co. was formed to acquire the California oil interests of E. L. Doheny and associates, the deal involving financing to the extent of $35,000,000 to effect the purchase.

Good Gasoline Situation

The marked improvement in the gasoline situation, from the standpoint of selling prices, accounted for a good deal of the gains shown in the earning statements of the large refining and marketing groups. Prices received for other products, with the exception of fuel oil, were also much better, on the average, than was the case during the preceding year.

Another constructive development during 1928, from the standpoint of earnings, was the better yield on gasoline marketing operations derived through the higher prices obtained in both tank car and tank wagon market sales. The type of competition prevailing in gasoline marketing operations over the greater part of the country underwent a marked change for the better during 1928, and with price cutting relegated more and more to the background as a method of stimulating sales, refiners found themselves in position to obtain a fair margin of profit on both their refining and marketing operations.

Fuel Oil Prices Forced Downward

Were it not for the unusually low prices that prevailed on fuel oil sales throughout the entire year, the earning

(Continued on Page 286)

Overproduction in California in 1928

Crude Output Exceeded Only in One Year. Deeper Pays and New Fields Discovered. Production This Year May Be Increased

By L. P. Stockman
Staff Correspondent, Southwest Texas

California concluded its sixth consecutive year of excessive crude oil production on December 31, 1928, and unless preventive steps are undertaken 1929 will be a repetition of what has gone before. The new year was ushered in on the wave of a rapidly increasing production due principally to deep zone exploitation at Santa Fe Springs and from present indications State production will continue at a high rate at least for another year unless restricted as a result of mutual artificial curtailment or obligatory regulation by enforcement of the State's police powers. There has been a very marked tendency toward co-operation on the part of operators during the past several months and while it is quite possible that some definite constructive action may result from the concerted effort being made along this line it is doubtful if any mutually co-operative movement will exert more than a temporary stabilizing effect at best. The coming year is fraught with considerable possibilities from a production standpoint and it is needless to say that this condition demands the utmost consideration. Santa Fe Springs, Elwood, Potrero, Lawndale, Fruitvale, Ventura Avenue, and Kettleman Hills will all show increased production during the next 12 months and it is quite likely that the output of this imposing array of fields may be augmented by the discovery of additional producing areas.

Santa Fe Springs May Lead

Santa Fe Springs is expected to supplant Long Beach as the dominating factor in State production during the coming year due to deep-zone exploitation and it is believed that the output of the former will exceed the latter before the expiration of another 30 days. Two productive zones have already been opened up below the Meyer horizon at Santa Fe Springs but the real potentiality of this district is believed to lie in still deeper drilling as the underlying Miocene formation which proved so prolific at Long Beach has not yet been tapped. Both the Nordstrom and Buckbee zones are of lower Pliocene Age and it is therefore logical to assume that substantial production may be anticipated below these sands especially in view of the fact that the formation down to at least 8,000 feet is geologically favorable for the accumulation of oil in commercial quantities. The Nordstrum and Buckbee zones now under intensive development will probably show an early rapid decline due to gas depletion, inefficient drilling and limited amount of oil sand present. Production at Santa Fe Springs is therefore expected to continue at a high rate for the first few months of 1929 and probably show a second upswing later in the year when Miocene development gets under way.

Importance of Lawndale

The Lawndale Field of Los Angeles Basin is also expected to become an important factor in State production during 1929, although peak production may not be reached until some time in 1930. Considerable activity involving about 50 wells has already got under way and the presence of an intensely subdivided town lot area immediately adjacent to the discovery well is ample assurance that a highly competitive drilling campaign will be started as soon as another producer or two has been completed. One of the most interesting features in connection with this projected development work is the fact that the axis of the Lawndale structure is believed to be located east of the discovery in which event it will bisect the town lot section in a northwest and southeast direction. This is especially important in as much as these small diversified holdings will result in the drilling of a large number of wells. Operators have not been able to sign up large community leases and consequently several of the major companies, including the Standard, Union and Richfield are drilling on town lots notwithstanding the fact that this procedure is in direct opposition to the conservative development policy adopted by the companies in question. It is a case of either drill on town lot acreage or stay out.

Development work in the Lawndale Field during the next several months will undoubtedly be watched with considerable interest because of the possibility that shallow production may be developed above the deep zone already proven up. This is of special importance because it may result in the building up of substantial production several months sooner than anticipated. Paleontological work indicates that the discovery well in this field is producing from the Miocene in which event it is logical to assume that the overlying Pliocene will ultimately be found productive at least on top of the structure. The discovery well shows every indication of being an edge well notwithstanding the fact that the output is relatively clean. The total absence of Pliocene production in all wells drilled up to date and the prevalence of water in two former projects located in the immediate locality also tends to indicate that the outer limits of production are not very far removed. If the paleontological work undertaken up to the present time is correct in that the initial completion in the Lawndale Field is producing from the deep Miocene formation this field will bear watching during the next few months as it may prove a bigger factor than many anticipate. The first large well finished at Lawndale was completed at 5,897 feet and if this is Miocene production the Pliocene may be expected to be encountered around 4,000 feet. Special attention is directed to the depth at which the upper production is expected because this may become a very important factor as it will not take any great length of time to drill down to this point.

Elwood Definitely Productive

The Elwood Field of Santa Barbara County which was discovered by the Barnsdall and the Rio Grande Oil Companies in July, 1928, has been definitely proven up as a field of the first magnitude and drilling operations subsequent to completion of the discovery well have conclusively established the outer limits of production in three directions. The establishment of these limits incidentally has been to the advantage of the Barnsdall and Rio Grande, each of which has a 50 per cent interest in production, as these two concerns control the total amount of potentially productive acreage. The western limits of production are at present geographically defined by the Pa-

CALIFORNIA FIELD OPERATIONS BY DISTRICTS FOR YEAR 1928

District—	Oil Wells Completed—Number	Oil Wells Completed—Initial Prod.	Oil Wells*—Drlg.	Oil Wells*—Prod.	Abandoned—Drlg.	Abandoned—Prod.	New Rigs
Kern River	70	12,599	8	1,256	6	2	71
Fruitvale	6	3,340	3	2	1	..	14
Mount Poso	22	7,500	5	3	10	..	58
Round Mountain	14	6,021	4	2	3	..	14
McKittrick	6	475	1	291	2	7	9
Midway-Sunset	63	13,838	11	2,595	11	64	70
Elk Hills	..	.....	1	219	..	4	1
Lost Hills-Belridge	24	1,949	2	305	1	..	27
Kettleman Hills	1	4,000	..	.....	..	..	6
Coalinga	9	292	2	847	4	16	5
Wheeler Ridge	4	252	1	33	..	..	3
Watsonville	1	20	..	6	..	..	..
Santa Maria	9	2,200	5	225	..	1	10
Summerland	..	.....	1	90	..	..	1
Elwood-Goleta	4	15,471	3	4	6	7	18
Rincon	25	13,822	12	15	1	..	29
Ventura Avenue	41	76,488	33	123	3	..	56
Ventura-Newhall	8	498	22	510	17	1	31
Los Angeles-Salt Lake	..	.....	..	326	..	7	..
Whittier	..	.....	..	174	..	1	..
Fullerton	7	9,028	5	379	1	..	8
Coyote	4	585	1	209	1	6	5
Santa Fe Springs	38	142,530	69	302	1	25	269
Montebello	5	495	2	170	..	2	5
Richfield	18	5,480	7	265	5	9	18
Huntington Beach	54	10,714	9	566	15	50	45
Long Beach	245	339,168	160	737	16	39	368
Torrance	2	142	..	632	1	39	2
Dominguez	5	1,483	2	72	1	2	5
Rosecrans	2	612	2	107	1	11	7
Inglewood	8	2,929	1	221	..	..	12
Newport	..	.....	2	3	3	13	2
Seal Beach	14	7,298	4	137	10	15	13
Potrero	2	2,200	2	1	1	..	5
Lawndale	1	1,100	..	...	..	..	1
Miscellaneous Drilling	..	.....	132	...	70	..	102
Total	712	681,629	512	10,823	191	321	1,290

CALIFORNIA CRUDE OIL PRODUCTION, JANUARY-DECEMBER, 1928, INCLUSIVE
(Barrels of 42 U. S. gallons)

District—	January (bbls.)	February (bbls.)	March (bbls.)	April (bbls.)	May (bbls.)	June (bbls.)	July (bbls.)	August (bbls.)	September (bbls.)	October (bbls.)	November (bbls.)	December (bbls.)	Total (bbls.)
Kern River	777,448	788,112	800,486	293,453	213,158	199,534	190,091	187,877	174,991	345,487	543,964	556,683	5,071,284
Mount Poso	2,929	3,106	529	576	1,442	4,077	12,061	8,494	8,575	5,015	2,500	4,673	53,977
Fruitvale	.....	.....	.....	.....	.....	.....	10,628	9,126	10,466	30,016	32,448	40,769	133,433
Round Mountain	1,195	2,742	4,360	3,406	3,746	13,245	1,548	3,842	3,847	3,151	1,366	2,507	44,455
McKittrick	148,361	140,383	153,379	150,933	157,005	147,070	149,855	159,132	148,123	150,803	146,009	154,432	1,805,485
Midway-Sunset	2,471,365	2,338,172	2,505,747	2,192,995	2,188,399	2,125,371	2,227,911	2,287,235	2,185,728	2,276,908	2,247,248	2,267,014	27,314,093
Elk Hills	745,635	707,492	729,064	708,827	723,623	706,899	670,291	669,405	631,615	631,336	586,454	596,557	8,107,198
Lost Hills-Belridge	128,873	127,780	126,529	121,566	126,033	124,185	132,993	126,060	121,048	126,177	129,711	135,536	1,526,491
Coalinga	606,612	566,728	602,098	323,738	325,249	318,916	326,584	329,357	314,280	325,804	305,253	310,665	4,655,284
Kettleman Hills	.....	.....	.....	.....	.....	.....	.....	.....	.....	5,000	78,266	116,433	199,699
Wheeler Ridge	28,958	27,650	28,028	26,280	30,298	27,917	28,476	27,422	27,219	26,677	25,183	25,377	329,485
Watsonville	1,783	1,667	1,782	1,725	1,783	1,776	1,982	1,937	1,825	1,938	1,875	1,938	22,010
Santa Maria	190,560	159,452	199,760	186,072	178,345	162,487	162,082	153,598	149,461	159,344	157,264	153,074	2,041,499
Summerland	3,885	3,640	3,900	3,765	3,820	3,690	3,767	3,758	3,445	3,648	3,767	3,767	44,853
Elwood-Goleta	9,363	9,414	6,267	4,617	3,005	2,523	12,705	71,631	75,599	76,363	251,827	371,838	895,152
Rincon	13,556	12,198	31,924	58,354	90,041	121,826	111,207	110,658	123,446	147,683	135,408	126,434	1,082,735
Ventura Avenue	1,617,350	1,547,097	1,587,917	1,533,798	1,494,421	1,459,371	1,662,998	1,574,597	1,629,377	1,681,632	1,560,494	1,571,890	18,920,942
Ventura-Newhall	195,531	175,623	176,043	170,763	178,878	168,569	179,007	176,920	170,863	156,113	172,794	175,249	2,096,343
Los Angeles-Salt Lake	46,943	46,501	48,080	48,238	46,345	46,498	48,286	46,514	44,461	47,900	46,360	44,481	560,607
Whittier	51,577	49,940	53,255	50,878	52,302	51,695	51,085	49,496	49,072	52,559	49,259	50,978	612,126
Fullerton (Brea Olinda)	465,300	495,776	484,702	483,755	506,546	470,929	456,932	453,628	511,717	486,918	471,586	455,055	5,743,044
Coyote	432,751	401,143	423,792	407,368	421,449	403,051	416,584	418,783	389,295	405,862	392,330	389,590	4,901,998
Santa Fe Springs	1,200,632	1,099,255	1,165,095	1,106,921	1,144,650	1,116,402	1,136,829	1,226,683	1,120,785	1,114,990	1,640,784	3,020,905	16,093,931
Montebello	395,946	378,022	385,612	375,415	376,930	364,499	367,722	369,656	346,964	344,543	325,881	340,948	4,369,638
Richfield	655,299	578,484	600,465	583,742	587,371	573,359	573,120	554,424	511,091	527,764	513,464	540,090	6,798,673
Huntington Beach	1,817,363	1,680,565	1,756,003	1,632,455	1,677,118	1,602,423	1,640,090	1,604,631	1,567,200	1,591,361	1,538,486	1,534,593	19,642,278
Long Beach	3,505,390	3,436,098	3,877,311	4,611,182	5,619,187	5,830,671	6,078,332	5,918,210	5,939,973	5,986,823	5,869,645	5,794,281	62,467,103
Torrance	610,527	567,244	590,393	562,358	549,865	527,011	560,564	535,311	496,290	501,638	471,029	481,837	6,454,067
Dominguez	401,629	368,066	389,876	379,524	387,544	366,353	359,289	342,052	320,484	319,926	309,672	322,194	4,267,009
Rosecrans	246,304	217,179	209,136	196,895	193,937	197,059	189,670	180,771	183,359	183,292	179,786	215,937	2,392,325
Inglewood	967,605	890,527	933,143	892,819	911,424	906,067	928,916	930,635	851,012	868,082	832,979	849,588	10,762,797
Newport	460	638	102	210	350	865	2,580	2,678	480	1,313	2,540	930	13,146
Seal Beach	1,287,898	1,187,765	1,243,424	1,165,551	1,121,472	1,105,041	1,046,939	898,262	787,323	836,130	874,609	881,957	12,436,371
Potrero	.....	.....	92	2,150	17,030	14,866	13,334	12,116	10,185	8,686	8,104	20,817	107,380
Lawndale	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	15,686	15,686
Total	19,028,228	18,038,459	19,118,324	18,280,729	19,331,866	19,164,244	19,754,458	19,444,899	18,908,169	19,430,992	19,907,526	21,574,703	231,982,597
Daily average 1928	613,814	622,016	616,720	609,357	623,609	638,808	637,241	627,255	630,272	626,806	663,584	695,958	633,832
Daily average 1927	651,125	642,240	639,862	649,794	629,228	639,381	623,194	621,907	635,483	627,384	617,216	610,930	632,196
Daily average 1926	615,147	612,999	607,283	603,059	602,166	608,981	604,619	605,325	603,498	611,808	639,104	654,095	614,019
Daily average 1925	604,622	602,494	600,839	598,655	607,107	642,938	658,421	677,599	668,759	645,648	636,530	620,958	630,541
Daily average 1924	674,597	666,939	642,362	643,328	639,793	626,933	621,766	616,548	610,274	603,115	592,234	606,294	628,588
Daily average 1923	530,885	586,670	632,522	689,865	694,689	755,570	814,906	852,903	858,750	792,787	746,595	706,427	722,545
Daily average 1922	313,472	323,585	330,663	339,536	359,554	357,731	374,138	382,221	406,338	432,885	467,851	497,639	382,539
Daily average 1921	325,401	328,104	338,544	338,992	326,941	337.045	329,844	343,227	261,980	227,865	293,616	325,631	313,882

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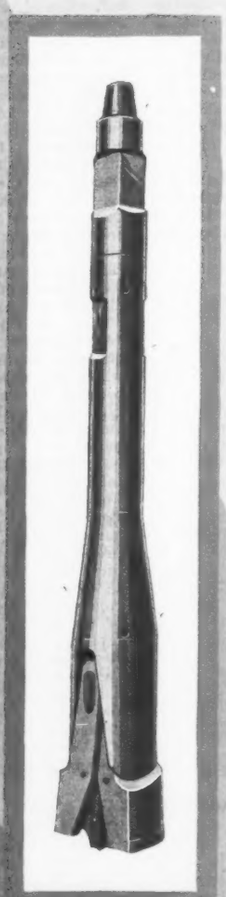

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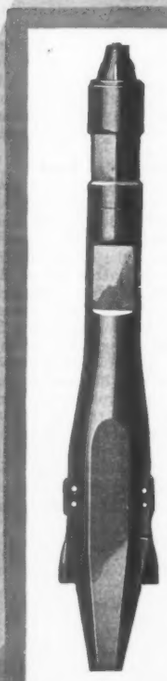

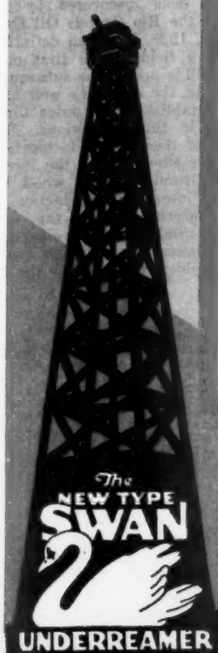

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cific Ocean but it is the general consensus of opinion that a large part of the productive Elwood structure is buried beneath the ocean bed. The Barnsdall took the necessary precaution several months ago to protect its interests in this direction in case tideland drilling is ultimately permitted by State laws. Considerable opposition has developed to tideland drilling and it is quite likely that the State Legislature will amend the 1921 Leasing Act and prohibit drilling in the open ocean. It would be very advantageous to Barnsdall if it could secure drilling privileges on tidelands at Elwood but even if this is denied the company will be able to drain this reserve as several producing wells are located just back of the beach.

The Elwood Field is ideally situated geographically and is especially conducive to rapid efficient development at a minimum of expense and a maximum flush production. Its proximity to the Pacific Ocean, the discovery well incidentally being located within a stones' throw of high tide, eliminates any transportation problems as tankers are able to load within a few hundred feet of shore. The structure at Elwood is believed to be a well defined anticline whose axis runs almost due east and west, although it is possible that the structure now under development may only be a portion of the total original anticline. The Barnsdall and the Rio Grande's discovery well at Elwood was completed doing 2,850 bbls. per day from 3,208 feet in July, 1928, with only a limited penetration in the oil sand. Total production at Elwood up to the end of December, 1928, aggregated 848,962 bbls., with current production approximating 23,000 bbls. per day from six wells.

Upset Geological Theories

The discovery of oil in large commercial quantities at Elwood upset generally accepted geological theories and has resulted in the institution of a major prospecting campaign involving the total Coastal area from Ventura northward to San Luis Obispo. Geologists, as a rule, have heretofore discredited the probability of developing commercial production in the Vaqueros formation, but with the discovery of prolific Vaqueros production at Elwood Terrace and Kettleman Hills this opinion has been proven erroneous. The Vaqueros sand at Elwood is in the nature of a soft rather even grained sandstone with occasional hard layers. It is quite porous and tests made up to the present time indicate a probable potential porosity in excess of 30 per cent. Development work at Elwood has been along conservative lines with each additional completion taking a larger penetration in the oil sand than its immediate predecessor. The entire thickness of productive oil measures has therefore not been definitely established but its thickness in near-by exposures is estimated at about 350 feet. Approximately 300 acres has already been proven up as commercially productive at Elwood Terrace and subsequent drilling may increase this to a considerable extent. In addition to the Vaqueros at Elwood there is a possibility of developing deeper production in the underlying Sespe formation of red, brown, gray and greenish shales and hard sands and sandstones approximating 3,000 feet in thickness. The Sespe sandstone is fairly hard although it is quite porous and well adapted to serve as a reservoir for oil.

Minimum Reserve 50,000,000 Bbls.

A minimum reserve of 50,000,000 bbls. of high grade oil is already in sight at Elwood Terrace and additional development is expected to increase the total ultimate recovery to a very appreciable extent. This estimate is a rather conservative one with no allowance made for the ability of producing wells on land to drain that portion of the structure located out in the open ocean. The shallow depth at which production is secured in the Elwood Field is conducive to economic efficient development at a minimum of expense. These producers can be drilled from spud to completion in approximately 21 days at a cost of not to exceed $30,000 per well. The oil is of a high quality testing 39 degrees A.P.I., and brings $1.70 per barrel at the present time. The six producing wells finished in this field up to the present time have shown an average initially of 4,000 bbls. after being pinched in to maintain back pressures with apparently no decline evident so far. It is quite obvious, therefore, that these shallow producers will completely pay out in less than two weeks' time.

The Barnsdall and the Rio Grande Oil companies will continue to pursue a conservative but aggressive development program at Elwood and it is quite probable that the output of this field will exceed 50,000 bbls. per day before the close of 1929 especially if these producing wells continue to hold up to their initial. Production of natural gasoline at Elwood is also expected to register a substantial increase during the coming year and consequently become an important factor in marketing conditions. Present production of natural gasoline at Elwood approximates 12,000 gallons daily and the Rio Grande Oil Co. has found it necessary to start doubling the capacity of its absorption plant in this field in order to take care of projected completions during the next few months. When the Elwood Field was first opened up the Barnsdall and Rio Grande companies shipped their current production out in tank cars but this procedure did not last long as these operators soon found it necessary to lay a submarine pipe line out into the open ocean in order to utilize tankers. This submarine line is soon to be replaced by the construction of a new loading wharf. The Rio Grande has already started its expansion work in southern California by erecting a new marine terminal at Los Angeles Harbor and enlarging the capacity of its Vinvale refinery in order to handle increased production from Elwood. The company's new terminal will cost around $750,000 exclusive of a new 8-inch crude oil line, a new 6-inch fuel oil line and a 4-inch gasoline line which will be run from the marine wharf to the Vinvale refinery, a distance of around 15 miles.

Opening of Kettleman Hills

One of the most important discoveries in California during 1928 was the completion of a highly productive well in the Kettleman Hills Field by the Milham Exploration Co. The discovery well, which was completed October 5, 1928, blew in prematurely and ran wild for more than a week before being successfully capped and brought under control. It showed an initial of 4,000 bbls. of 60 gravity oil and 35,000,000 feet of gas daily from 7,235 feet and taxed the capacity of four gas traps after being brought under control. The Texas Company has contracted for the Milham's wet gas at Kettleman Hills and an absorption plant is now in course of construction. The importance of the Milham's discovery lies in the fact that it may ultimately result in the opening up of two near-by kindred structures. The Kettleman Hills anticline is approximately 30 miles in length and extends southeasterly from Coalinga in Fresno County to the Lost Hills district in Kern County. Three definite structures are present in the Kettleman Hills and although only one of them, the north dome, has been definitely proved up as highly prolific as a result of the Milham's completion, subsequent work may also ultimately result in the discovery of oil in commercial quantities in both the middle and south domes. The extent and productivity of the north dome is still conjectural in view of the limited amount of information available up to the present time but it is entirely within the realms of possibility that this field may approximate from 1 to 2 miles in width and from 1 to 10 miles in length.

The Kettleman Hills structure is to all intents and purposes a southeastward continuation of the Coalinga anticline and it in turn continues into the area immediately adjacent to the Lost Hills Field. Although considerable development work has already got under way in the Kettleman Hills Field of Kings County which, incidentally, has an exceptionally large drainage area, drilling operations in this district will be along conservative lines and according to well established principles of oil field development. The absence of an intensely subdivided town lot area precludes competitive drilling and will result in normal development. Operators have arrived at a gentlemen's agreement affecting the setback from property lines and it has been tentatively decided to drill not more than one well to each 10 acres. The Standard is the largest holder of potential oil land in the Kettleman Hills Field through its ownership in fee of every alternate square mile. This checkerboard of acreage was procured by the Standard in the Pacific Oil merger. It was previously acquired by the latter on a deed from the Southern Pacific Railroad which years ago received every alternate section of land free as a bonus for railroad construction. The Marland Oil Co. controls approximately 2,000 acres in the north dome, about 1,000 acres of which are located immediately adjacent to the discovery well. The Milham, General Petroleum, Associated and other aggressive operators also hold large leases.

Will Be a Slow Development

This field will not become an important factor in state production until late in 1929 due to the extreme depth at which production is secured although it is not at all improbable, however, that this field may be doing in excess of 50,000 bbls. a day before 1930 rolls around. It is too early to make an estimate one way or the other due to the limited data available with respect to the thickness and productivity of oil-bearing formation and extent and scope of structure. The General Petroleum is working on a very important test in this area at the present time and if this project, No. 2 Oschener results in substantial production, as a preliminary survey has indicated, 50 wells should be completed this year. The completion of this well will automatically extend the proven limits of production and open up considerable acreage for development. The discovery of highly prolific production in the north dome of the Kettleman Hills by the Milham Exploration Co. climaxes a search of many years' duration and a period brim full of interesting experiences and accompanied by more than the usual vicissitudes incident to wildcat exploration. Several times prospectors have had the mythical Farmer sands only to loose it through mechanical trouble or some other unusual difficulty. The Milham interests experienced a similar condition just at the critical point but were ultimately successful in overcoming this mechanical trouble after a long tedious discouraging fishing job. Things looked mighty black at times but tenacity of purpose and an unshakable belief in the potentialities of this district were finally rewarded. The discovery of the new Kettleman Hills Field is perhaps the greatest single achievement in California prospecting work in a number of years as the Kettleman Hills anticline has enormous potential possibilities and may lead to additional discoveries of immense value. The Bolsa Chica Oil Co. was the first operator to successfully produce oil in the Kettleman Hills but unluckily the crude found was of low grade testing around 18 degrees and did not warrant additional development until the market for heavy oil improves. This discovery was made in the middle dome where the company has considerable potential acreage which will be tested out for deep production at a later date with a good prospect of success.

Fruitvale a 1928 Find

Success marked the wildcatting activities of the Pacific Eastern Production Co. (Gulf interests) in the Fruitvale area of Kern County early in 1928 with the result that a new field was opened up for development at that point. This field only showed a relatively small production during the past year due to the fact that the oil is not particularly desirable either from a refining or fuel oil standpoint notwithstanding that it tests approximately 22.5 degrees A.P.I. Several good flowing wells have been finished in the Fruitvale Field since completion but they have either been severely pinched in or closed down entirely due to the inability to dispose of current production. The fuel oil situation on the Pacific Coast was exceptionally unstable during the past year and stocks of heavy crude and refinery residuum continued to accumulate, more than 4,000,000 bbls. being added to storage. No improvement is anticipated along

PRODUCTION OF CRUDE BY MONTHS—CALIFORNIA OIL DISTRICTS

(Barrels of 42 U. S. Gallons)

Month—	1928 Total Bbls.	1928 Daily Average	1927 Total Bbls.	1927 Daily Average
January	19,028,225	613,814	20,184,872	651,125
February	18,038,459	622,016	17,982,711	642,240
March	19,118,324	616,720	19,835,724	639,862
April	18,280,729	609,357	19,493,825	649,794
May	19,331,866	623,609	19,506,954	629,228
June	19,164,244	638,808	19,181,442	639,381
July	19,754,458	637,241	19,319,021	623,194
August	19,444,899	627,255	19,279,131	621,907
September	18,908,169	630,272	19,064,500	635,483
October	19,430,952	626,806	19,448,893	627,384
November	19,907,526	663,584	18,516,467	617,216
December	21,574,703	695,958	18,938,823	610,930
Total Year	231,982,597	633,832	230,751,463	632,196

CALIFORNIA

FIELD OPERATIONS BY MONTHS FOR YEAR 1928

1928—	Oil Wells completed No.	Oil Wells completed Bbls. dy.	Wells Drig.	Wells Prod.	Abandoned Drig.	Abandoned Prod.	New rigs
January	43	18,410	446	11,281	21	37	113
February	70	40,333	458	11,299	13	22	87
March	55	35,353	458	11,315	20	33	75
April	65	71,703	450	10,716	17	18	97
May	64	66,117	450	10,531	19	38	99
June	54	41,866	463	10,624	15	36	78
July	57	65,278	446	10,643	16	13	76
August	57	30,058	468	10,663	17	21	149
September	59	54,964	532	10,670	27	68	206
October	44	47,449	638	10,704	4	7	84
November	63	65,774	639	10,721	11	3	129
December	81	144,324	640	10,711	12	26	97
Total 1928	713	681,629	...	.....	191	321	1,290
Total 1927	901	479,905	...	.....	281	252	1,160
Total 1926	813	391,620	...	.....	284	200	1,138
Total 1925	948	506,969	...	.....	338	141	1,262
Total 1924	1,238	508,944	...	.....	336	251	1,240
Total 1923	980	1,376,279	...	.....	293		1,327
Total 1922	801	524,397	...	.....	204		1,379
Total 1921	684	187,567	...	.....	162		1,082
Total 1920	587	169,500	...	.....	159		925
Total 1919	558	114,870	...	.....	211		692
Total 1918	597	126,925	...	.....	155		607
Total 1917	749	128,296	...	.....	162		766
Total 1916	619	103,765	...	.....	214		672
Monthly average 1928	...	.....	...	.....	...	...	...
Monthly average 1927	75	39,992	404	11,276	23	21	97
Monthly average 1926	76	32,635	422	11,288	24	17	95
Monthly average 1925	79	42,247	417	11,393	28	12	105
Monthly average 1924	103	42,412	510	10,903	28	21	103
Monthly average 1923	82	114,690	759	8,928	24		111
Monthly average 1922	67	43,700	605	9,410	17		115
Monthly average 1921	57	15,631	536	9,426	14		90
Monthly average 1920	49	14,125	402	9,399	13		77
Monthly average 1919	47	9,572	340	8,774	18		58
Monthly average 1918	50	10,577	362	8,210	13		50
Monthly average 1917	63	10,690	361	7,398	14		64
Monthly average 1916	53	8,647	338	6,542	18		56

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this line and there is therefore very little chance of the Fruitvale Field becoming a factor of any consequence during 1929. The Mount Poso and Round Mountain Fields of Kern County are in very much the same situation as Fruitvale in as much as they too yield a heavy unrefinable crude which can not be absorbed to advantage in the face of existing conditions. Development work continued in both the Mount Poso and Round Mountain Fields during the year but new wells were immediately shut in upon completion. A number of outposts were drilled and successfully completed and while these projects extended the productive limits to a very appreciable extent operators were unable to produce after completion due to the absence of pipe line facilities and the undesirability of heavy oil which would of necessity have gone into storage.

Very Deep Drilling Ahead

There has been a very marked tendency in California fields, especially during the past year, to engage in deeper drilling and it is quite likely that considerable work along this line will be undertaken in years to come as recent geological discoveries indicate the probable existence of additional productive zones below present producing horizons in many fields. Present development work at Santa Fe Springs and the exploitation of Miocene formation at Long Beach is the result of progressive drilling which has carried the bit deeper with each succeeding completion. Deep zone exploitation in California did not get under way until early in 1928. Only one successful commercial producer was finished in California below the 7,000-foot level previous to January 8, 1928. This was E. J. Miley's No. 6 Athens, located in the Rosecrans Field of Los Angeles Basin, which came in under a natural flow doing 1,000 bbls. a day from 7,591 feet on September 25, 1925. This well failed to hold up, however, and deep drilling did not again become a factor until over two years later, in 1928. It is interesting to note in this connection that there are 82 wells producing in California from below the 7,000-foot level at the present time. All of these deep projects, which are located in the Long Beach, Ventura Avenue, Kettleman Hills and Seal Beach Fields, have been completed since January 1 of last year.

Progress of Deep Hole Work

The Shell started the ball rolling on January 8, 1928, by completing No. 18 Edison in the Ventura Avenue Field doing 3,750 bbls. daily from 7,015 feet. The completion of this well established a record for large deep production but the Shell did not retain this distinction very long as the Associated brought in No. 1 Dabney Lloyd in the same field doing 425 bbls. daily from 7,032 feet a few weeks later. The Shell came back again and carried off deep completion honors by finishing No. 19 Edison doing 990 bbls. daily from an even 7,100 feet on February 8, 1928, only to relinquish this record again when the Associated completed No. 102 Lloyd in the Ventura Avenue Field doing 3,200 bbls. daily from 7,210 feet on March 14. The General Petroleum entered the picture at this point by carrying No. 2 Hisey down to 7,276 feet and finishing it as a commercial producer on April 6. The scene then shifted to Long Beach, where the Richfield Oil Co. brought in No. 6 Denni flowing 1,475 bbls. daily from 7,401 feet on May 6, 1928. This record was broken eight days later when the Shell completed No. 1 Brown in the same field on May 14 doing 1,670 bbls. initially from 7,503 feet.

Deepest Producer in State

The Associated recovered the deep drilling record by finishing No. 100 Lloyd in the Ventura Avenue Field flowing 1,175 bbls. daily from 7,957 feet on July 30, 1928. This well is the deepest commercial producer in the State of California but may be surpassed when deep Miocene development gets under way at Santa Fe Springs. Commercial production has not yet been developed in California below the 8,000-foot level, although the Shell's No. 3 on the Wells lease at Long Beach came very close to achieving this distinction. This project was carried down to 8,087 feet and finished on October 26, 1928, but failed to make the grade due to water trouble. It was subsequently plugged back to around the 7,500-foot level. Most of the deep drilling undertaken in California up to the present time has been in the Long Beach and Ventura Avenue Fields but it would not be at all surprising if Kettleman Hills ultimately heads the list of deep zone producers as the first production secured in this district was found at 7,235 feet. The Ventura Avenue Field has a somewhat thicker oil-bearing formation than Long Beach where the oil sand continues almost unbroken from the 5,000-foot level down to around 8,000 feet, and it is quite likely therefore that operators at Ventura Avenue will eventually finish producers below any depth attainable in Los Angeles Basin fields. It is interesting to note in this connection that no wells located on top of the structure at Ventura Avenue have drilled entirely through the oil zone, notwithstanding the fact that a depth of nearly 8,000 feet has already been reached. There were 712 producing wells completed in California during 1928, of which Long Beach accounted for 245; Kern River, 70; Midway-Sunset, 63; Huntington Beach, 54; Ventura Avenue, 41; and Santa Fe Springs, 38. This is the smallest number of new wells finished in any calendar year since 1921, when 684 producers were finished. The aggregate initial daily output of the 712 new wells finished in 1928, however, was second only to the phenomenal record established in 1923, when several flush fields were in the ascendancy simultaneously. The total initial daily production for 1923 and 1928 was 1,376,279 bbls. and 681,629 bbls. respectively. Drilling operations in California were severely retarded during 1928 and this mutual curtailment of operations is responsible for the relatively small number of new wells finished during the period in question. Long Beach was the only field where development work was not held back as the town lot area prevented the consummation of a gentlemen's agreement restricting drilling operations.

Conservation in 1928

One of the most important developments in California during the past year was the tendency on the part of operators to appreciate the absolute necessity of restricting both production and development activities. Gas conservation occupied the attention of operators almost exclusively although producers of heavy unrefinable crude were obliged to curtail production for several months during the latter part of the year, due to the continual accumulation of heavy crude oil stocks which threatened to result in a serious situation. Light refining crude was in demand all year and major refiners are still seeking additional sweet oil, notwithstanding greatly increased production at Santa Fe Springs and the probable development of a substantial output at Lawndale during the coming summer. Production of natural gas in California exceeded requirements during the entire year and the economic waste resulting from the dissipation of huge quantities of gas into the air brought a severe reprimand from Governor Young's conservation committee. A concerted effort was made to eliminate excess production of natural gas as far as possible all during 1928 and this work, which resulted in the pinching in of a number of high gas-oil ratio wells at Ventura Avenue early in the year and the formation of definite plans to be followed out at Santa Fe Springs, has been productive of some results. Operators have not yet achieved the desired unification of effort at Santa Fe Springs, however, and consequently very little gas conservation has been effected in this field up to the present time. The plan to use excess natural gas at Santa Fe Springs for repressuring operations and storage in the upper horizons is expected to take definite form early in 1929, although there has been a tendency to delay this work in view of the projected Miocene development which will in all probability start shortly. The plan to curtail production by pinching in producing wells at Santa Fe Springs in order to eliminate excess production of natural gas has apparently fa through due to the lack of co-oper on the part of several smaller indep ent operators.

Production in 1928

California operators produced 2 982,597 bbls. of crude oil during and, while this figure has only been ceeded on one occasion, it would not at all surprising if the output in reached even larger proportions. State production record was establi in 1923 when simultaneous develop of several fields resulted in an aggre production of 263,728,895 bbls. of cr oil. The overproduction situation, wh started in 1921 and reached the cli in 1923 when the State production re ord was established, is expected to tinue at least for another year. Th is no encouragement as far as the pr duction situation is concerned altho there is some hope of a more stabl condition due to co-operation among pr ducers and refiners. It remains to seen, however, whether the possibil will become a reality. Estimates ma in advance by the writer for the pa six years that the average daily produ tion for each calendar year would in excess of 600,000 bbls. have been fu filled in every instance and I am of th opinion that State production in 192 will also be in excess of the 600,000-bb mark.

Outlook for 1929

The outlook for 1929 differs somewhat from the situation at the beginning of 1928 when large sustained produc tion had been definitely established. Pro duction was relatively stable last year but the output in 1929 may show a con siderable fluctuation from time to time Long Beach dominated the production situation in 1928 and the steady sus tained output shown by that field exerted a stabilizing affect on State out put. Santa Fe Springs will supplant Long Beach as the dominating factor in State production within the next few weeks and the erratic tendencies which have characterized previous work in the former field may be repeated again in 1929 and result in abrupt fluctuations. The Nordstrum and Buckbee horizons of Santa Fe Springs will probably show a rapid decline in the near future, causing a temporary decline in State production but Miocene development is expected to result in another substantial up swing in production later in the year. It might not be amiss to mention the fact that deep exploratory work is already under way beneath the Buckbee zone and the Miocene formation which proved so prolific at Long Beach may become an important factor sooner than anticipated. Lawndale, Elwood Terrace, Kettleman Hills, Ventura Avenue, Potrero and other productive fields will assist Santa Fe Springs in the maintenance of large production during 1929 unless development work is arbitrarily restricted. It is quite likely therefore that California production in 1929 will exceed the output during the past year.

Marketing Conditions Unstable

Marketing conditions on the Pacific Coast during 1928 were very unstable and resulted in several flare ups, during which periods the price of refined oil showed considerable fluctuation. The weakness in the gasoline situation was due in a large extent to the large differential existing for several months between the price of crude oil and quotations on refined oil. This unusually large spread permitted independents to engage in cut-throat competition with disastrous results on several occasions. The posted price for light refining crude was revised upward on August 15, 1928, in order to correct this situation and while this procedure stabilized conditions to some extent the refined oil market was weak all during the year and finally resulted in a general breakdown of prices at the opening of 1929. The outlook for 1929 from a market standpoint does not look particularly encouraging at the present time, especially in view of the withdrawal of major refiners from service station operation. The maintenance of service stations by refiners exerted

(Continued on Page 290)

CALIFORNIA POTENTIAL DAILY PRODUCTION
1927-1928 INCLUSIVE

	Marketable Daily Production	No. of Wells Producing	Curtailed — Daily Production	Curtailed — No. of Wells	Total Potential — Daily Production	Total Potential — No. of Wells
YEAR 1927						
1927—						
January	651,125	11,405	57,269	2,239	708,394	13,644
February	642,240	11,339	57,269	2,239	699,509	13,578
March	639,862	11,298	58,044	2,272	697,906	13,570
April	642,794	11,323	61,694	2,274	711,488	13,597
May	629,238	11,191	87,683	2,495	716,911	13,686
June	639,381	11,240	86,972	2,496	726,353	13,736
July	623,194	11,279	87,211	2,485	710,405	13,764
August	621,907	11,202	87,211	2,480	709,118	13,682
September	635,483	11,234	71,091	2,457	706,574	13,691
October	627,384	11,242	77,116	2,506	704,500	13,748
November	617,216,	11,278	77,116	2,506	694,332	13,784
December	610,930	11,284	78,226	2,526	689,156	13,810
Daily average	632,196	11,276	74,042	2,415	706,238	13,691
YEAR 1928						
1928—						
January	613,814	11,281	78,751	2,528	692,565	13,809
February	622,016	11,299	78,751	2,528	700,767	13,827
March	616,720	11,315	87,193	2,532	703,91	13,847
April	609,357	10,716	125,849	3,447	735,206	14,163
May	623,609	10,531	127,448	3,474	751,057	14,005
June	638,808	10,624	126,475	3,421	765,283	14,045
July	637,241	10,643	127,530	3,463	764,771	14,106
August	627,255	10,663	122,881	3,462	750,136	14,125
September	630,272	10,670	126,016	3,479	756,288	14,149
October	626,806	10,704	112,341	3,447	739,147	14,151
November	663,584	10,721	110,527	3,437	774,111	14,158
December	695,958	10,711	112,766	3,532	808,724	14,243
Daily average	633,832	10,823	111,377	3,239	745,209	14,062

TOTAL FLUID STOCKS HELD ON THE PACIFIC COAST
(Barrels)

	Heavy crude and fuel	Refinable crude	Gasoline	Naphtha distillates	All other stocks	Total all stocks
1927—						
Jan. 31	90,462,728	31,176,493	13,603,134	4,114,777	10,423,669	149,680,801
Feb. 28	90,301,202	29,913,353	14,017,263	4,033,824	10,495,741	148,761,383
March 31	90,232,297	29,500,917	14,571,992	4,058,974	10,003,875	148,368,055
April 30	90,820,675	29,418,335	14,718,706	3,741,718	9,907,191	148,606,625
May 31	92,812,985	27,365,926	13,852,780	3,659,951	9,924,425	147,616,067
June 30	93,326,393	27,175,071	13,851,828	3,517,038	9,716,166	147,586,496
July 31	94,390,140	25,639,833	13,385,897	3,413,614	9,943,525	146,773,059
Aug. 31	94,589,976	23,931,170	13,130,611	3,104,755	9,444,877	144,201,389
Sept. 30	95,006,723	23,026,124	13,072,462	2,672,994	9,860,777	143,638,081
Oct. 31	94,984,154	21,841,747	13,359,761	2,351,849	9,860,235	142,437,746
Nov. 30	95,212,430	21,371,274	13,527,472	2,039,755	9,745,428	141,896,359
Dec. 31	94,907,147	20,268,569	13,712,030	1,901,279	9,529,592	140,318,617
1928—						
Jan. 31	95,621,539	20,784,053	13,897,623	1,820,900	9,251,941	141,376,056
Feb. 29	96,239,379	20,676,318	14,247,079	1,845,109	9,187,790	142,195,675
March 31	95,880,671	20,215,802	14,779,259	1,633,736	9,268,718	141,778,186
April 30	95,398,359	19,685,626	14,734,543	1,778,981	9,122,118	140,719,626
May 31	94,889,736	19,875,113	14,195,792	1,745,312	9,359,507	140,065,459
June 30	95,284,117	19,955,030	14,000,661	1,595,586	9,643,973	140,479,347
July 31	96,418,224	19,041,594	12,908,549	1,429,410	9,955,530	139,753,307
Aug. 31	95,781,762	19,205,105	11,683,443	1,184,998	10,588,689	138,443,997
Sept. 30	97,690,674	17,730,034	11,351,695	1,255,309	10,079,930	138,107,642
Oct. 31	98,449,077	17,323,160	10,626,268	1,285,014	9,763,667	137,447,186
Nov. 30	99,772,153	17,243,243	10,802,366	1,480,812	9,418,103	138,716,677
Dec. 31	100,424,634	17,954,434	10,766,410	1,541,414	9,488,643	140,175,535

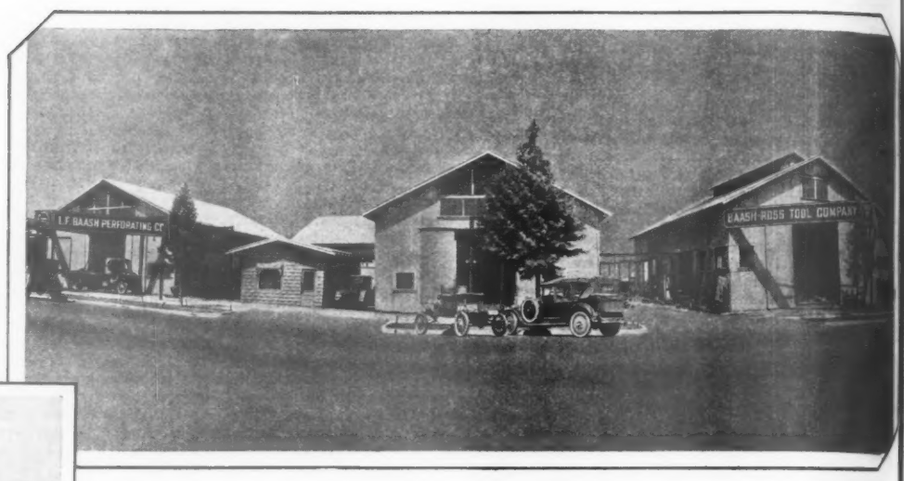
Oklahoma

Daily Average and Monthly Production in 1928

	January (bbls.)	February (bbls.)	March (bbls.)	April (bbls.)	May (bbls.)	June (bbls.)	July (bbls.)	August (bbls.)	September (bbls.)	October (bbls.)	November (bbls.)	December (bbls.)	Total (bbls.)
Otoe—													
Daily average	998	754	801	744	692	688	707	399	721	678	686	671	
Month	30,938	21,866	24,831	22,320	21,452	20,640	21,917	12,369	21,630	21,018	20,580	20,801	260,362
Ralston-Masham—													
Daily average	232	183	182	173	190	172	187	190	181	179	174	176	
Month	7,192	5,307	5,642	5,190	5,890	5,160	5,797	5,890	5,430	5,549	5,220	5,456	67,723
PAYNE COUNTY:													
Yale, Quay and Ingalls—													
Daily average	5,815	5,777	5,684	5,666	5,596	5,383	5,006	4,833	4,787	4,479	4 366	4,343	
Month	180,265	167,533	176,204	169,980	173,476	161,495	155,186	149,823	143,610	138,849	130,980	134,633	1,882,034
North and South Cushing—													
Daily average	3,084	2,966	2,944	2,675	2,569	2,214	2,014	1,710	1,633	1,628	1,604	1,605	
Month	95,604	86,014	91,264	80,250	79,639	66,420	62,434	53,010	48,990	50,468	48,120	49,755	811,968
Meehan-Ripley—													
Daily average	2,930	1,804	1,698	1,477	1,383	1,225	1,063	1,333	1,322	1,259	1,397	1,302	
Month	90,830	52,316	52,638	44,310	42,873	36,750	32,953	41,323	39,960	39,029	41,910	40,362	555,254
OKLAHOMA COUNTY:													
Trosper Park—													
Daily average	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	3,561	
Month	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	110,496	110,496
LINCOLN COUNTY:													
Stroud—													
Daily average	948	1,069	1,099	1,023	1,043	1,031	1,047	1,071	1,071	1,083	1,033	1,011	
Month	29,388	31,001	34,069	30,690	32,333	30,933	32,457	33,201	32,130	33,573	30,990	31,341	382,106
Davenport—													
Daily average	2,556	2,424	2,309	2,169	2,241	2,016	1,899	2 034	1,954	1,873	1,853	1,736	
Month	79,236	70,296	71,579	65,070	69,471	60,477	58,869	63,054	58,620	58,063	55,590	53,816	764,141
Kendrick—													
Daily average	436	435	385	361	358	347	379	279	266	273	262	260	
Month	13,516	12,615	11,935	10,830	11,098	10,410	11,749	8,649	7,980	8,463	7,860	8,060	123,165
MAY, GRANT AND NOBLE COUNTIES:													
Blackwell—													
Daily average	1,261	1,196	1,205	1,160	1,084	1,077	962	1,164	1,150	1,038	1,030	1,033	
Month	39,091	34,684	37,355	34,800	33,604	32,311	29,822	36,084	34,500	32,178	30,900	32,023	407,352
Vernon—													
Daily average	581	563	586	387	429	419	517	642	1.274	1,409	1,173	1,165	
Month	18,011	16,327	18,166	11,610	13,299	12,573	16,027	19,902	38,220	43,679	35,190	36,115	279,119
Ostot—													
Daily average	1 077	1,089	1,128	1,126	1,066	1,041	933	992	1,054	987	983	980	
Month	33,387	31,581	34,968	33,780	33,046	31,230	28,923	30,752	31,620	30,597	29,490	30,380	379,754
Garrett—													
Daily average	.....	.....	.....	.....	.....	.....	.....	.....	51	52	49	50	
Month	.....	.....	.....	.....	.....	.....	.....	.....	1,530	1,612	1,470	1,550	6,162
Deer Creek—													
Daily average	1,190	1,398	1,243	1,108	1,155	1,157	1,042	923	742	812	742	714	
Month	36,890	40,542	38,533	33,240	35,805	34,709	32,302	28,613	22,260	25,172	22,260	22,134	372,460
Ponca City—													
Daily average	696	682	733	697	755	693	757	866	790	788	740	711	
Month	21,576	19,778	22,723	20,910	23,405	20,790	23,467	26,846	23,700	24,428	22,200	22,041	271,864
Mervine—													
Daily average	304	297	325	319	304	307	301	303	330	349	333	333	
Month	9,424	8,613	10,075	9,570	9,424	9,209	9,331	9,393	9,900	10,819	9,990	10,323	116,071
North Braman—													
Daily average	2,999	3,070	2,846	2,996	2,876	2,902	3,004	2,892	2,790	2,762	2,529	2 510	
Month	92,969	89,030	88,226	89,880	89,156	87,061	93,124	89,652	83,700	85,622	75,870	77,810	1,042,100
South Braman—													
Daily average	1 897	1,905	1,918	1,728	1,543	1,519	1,522	1,468	1,255	1,421	1,250	1,238	
Month	58,807	55,245	59,458	51,840	47,833	45,569	47,182	45,508	37,650	44,051	37,500	38,378	569,021
Hubbard—													
Daily average	3,047	3,002	2,836	2,856	3,038	2,722	2,654	2,786	2,693	2,366	2,235	2,191	
Month	94,457	87,058	87,916	85,680	94,178	81,663	82,274	86,366	80,790	73,346	67,050	67,921	988,699
Thomas—													
Daily average	1,679	1,564	1,425	1,435	1,361	1,291	1,214	1,168	1,070	1,134	968	942	
Month	52,049	45,356	44,175	43,050	42,191	38,729	37,634	36,208	32,100	35,154	29,040	29,202	464,888
Tonkawa—													
Daily average	15,361	14,759	14,726	14,166	13,920	13,814	13,419	12,631	12,436	11 995	11,553	11,210	
Month	476,191	428,011	456,506	424,980	431,520	414,420	415,989	391,561	373,080	371,845	346,590	347,510	4,878,203
Billings—													
Daily average	171	196	198	144	184	177	170	227	156	191	180	181	
Month	5,301	5,684	6,138	4,320	5,704	5,311	5,270	7,037	4,680	5,921	5,400	5,611	66,377
Miscellaneous—													
Daily average	1,430	1,001	709	1,935	661	811	158	242	323	307	306	116	
Month	44,330	29,029	21,979	58,050	20,491	24,338	4,898	7,502	9,690	9,517	9,180	3,596	242,600
GARFIELD COUNTY:													
Garber—													
Daily average	9,160	9,246	8,090	8,730	8,721	8,523	8,336	7,706	8,499	6,345	6,821	6,414	
Month	283,960	268,134	250,790	261,900	270,351	255,682	258,416	238,886	254,970	196,695	204,630	198,834	2,943,248
LOGAN COUNTY:													
Lovell-Marshall—													
Daily average	2,086	4,003	6,360	6,329	5,767	5,771	6,321	10,173	9,433	9,390	9,010	13,456	
Month	64,666	116,087	197,160	189 870	178,777	173,130	195,951	315,363	282,990	291,090	270,300	417,136	2,692,520
CARTER COUNTY—													
Healdton—													
Daily average	14,240	13,868	13,834	13,864	14,121	13,972	14,177	13,634	13,891	13,734	13 542	13,316	
Month	441,440	402,172	428,854	415,920	437,751	419,160	439,487	422,654	416,730	425,754	406,260	412,796	5,068,978
Hewitt—													
Daily average	8,893	8,806	8,781	9,353	9,462	9,444	9,416	9,584	8,957	8,906	8,952	8,889	
Month	275,683	255,374	272,211	280,590	293,322	283,326	291,896	297,104	268,710	276,086	268,560	275,559	3,338,421
Graham—													
Daily average	4,594	4,498	4,504	4,390	4,216	4,188	4,083	3,969	3,689	3,607	3,567	3,514	
Month	142,414	130,442	139,624	131 700	130,696	125,632	126.573	123,039	110,670	111,817	107,010	108,934	1,488,551
Fox—													
Daily average	3,182	3,169	3,091	3,131	3,013	3,011	2,907	2,911	2,802	2,737	2,692	2,620	
Month	98,642	91,901	95,821	93,930	93,403	90,329	90,117	90,241	84,060	84,847	80,760	81,220	1,075,271
Brock—													
Daily average	884	846	882	860	788	793	749	723	726	565	697	683	
Month	27,404	24,534	27,342	25,800	24,428	23,794	23,219	22,413	21,780	17,515	20,910	21,173	280,312
Shalom Alechem—													
Daily average	12,995	13,062	13,353	16,473	16,294	16,016	15,275	15,275	14,444	14,226	14,528	14,510	
Month	402,845	378,798	413,943	494,190	505,114	480,470	473,525	473,525	433,320	441,006	435,840	449,810	5,382,386
STEPHENS AND COTTON COUNTIES:													
Loco-Milroy—													
Daily average	2,214	2,207	1,724	1,828	1,730	1,710	1,763	1,802	1,768	1,698	1,679	1,663	
Month	68,634	64,003	53,444	54,840	53,630	51,293	54,653	55,862	53,040	52,638	50 370	51,553	663,960
Comanche—													
Daily average	807	788	804	811	803	801	845	842	806	801	740	745	
Month	25,017	22,852	24,924	24,330	24,893	24,032	26,195	26,102	24,180	24,831	22,200	23,095	292,651
Duncan—													
Daily average	5,446	5,147	6,027	6,422	6,348	6,318	6,021	6,822	7,235	7,175	5,553	5,710	
Month	168,826	149,263	186,837	192,660	196,788	189,551	186,651	211,482	217,050	222,445	166,590	177,010	2,265,153
Walters—													
Daily average	1,000	1,009	948	960	957	949	907	1,029	994	994	1,046	966	
Month	31,000	29,261	29,388	28,800	29,667	28,466	28,117	31,899	29,820	30,814	31,380	29,946	358,558
Kilgore—													
Daily average	209	235	214	195	194	191	211	244	207	207	391	306	
Month	6,479	6,815	6,634	5,850	6.014	5,730	6,541	7,564	6,210	6,417	11,730	9,486	85,470
JEFFERSON COUNTY:													
Bambro—													
Daily average	1,621	1,614	1,549	1,864	2,064	1,911	2,109	2,371	2,447	2,342	2,298	2,210	
Month	50,251	46,806	48,019	55,920	63,894	57,339	65,379	73,501	73,410	72,602	68,940	68,510	744,661
RADIO COUNTY:													
Cement—													
Daily average	2,010	2,021	2,003	2,003	2,067	2,003	1,614	1,732	1,772	1,765	1,740	1,728	
Month	62,310	58,609	62,093	60,090	64,077	60,082	50,034	53,692	53,160	54,715	52,200	53,568	684,630
MARVIN COUNTY:													
Robberson—													
Daily average	2,222	2,221	2,269	2,278	2,343	2,263	2,211	2,116	2,074	2,146	2,114	2,117	
Month	68,882	64,409	70,339	68,340	72,633	67,888	68,541	65,596	62,220	66,526	63,420	65,627	804,421
GRADY COUNTY:													
Knox—													
Daily average	5,429	6,509	6,263	5,697	5,657	5,582	6,236	6,165	6,311	6,311	5,112	5,316	
Month	168,299	188,761	194,153	179,910	175,367	167,455	193,316	191,115	189,330	195,641	153,360	164,796	2,161,503
POTTOTOC COUNTY:													
Allen—													
Daily average	9,215	10,476	10,453	14,248	20,632	21,279	21,330	20,841	22,485	23,426	25,028	28,415	
Month	285,665	303,804	324,043	427,440	639,592	638,383	661,230	646,071	674,550	726,206	750,840	880,865	6,958,689
BECKHAM COUNTY:													
Hayo—													
Daily average	40	46	46	46	45	45	45	46	46	46	36	37	
Month	1,240	1,334	1,426	1,380	1,395	1,349	1,395	1,426	1,380	1,426	1,080	1,147	15,978
MARSHALL COUNTY:													
Madill—													
Daily average	160	155	194	197	195	184	279	400	369	323	263	266	
Month	4,960	4,495	6,014	5,910	6.045	5,532	8,649	12,400	11,070	10,013	7,890	8,246	91,224
Daily average	676,720	665,324	650,404	636,564	627,205	616,099	606,748	672,284	748,562	755,841	735,956	723,410	676,232
Total first six months 1928	20,978,320	19,294,426	20,162,524	19,096,920	19,443,355	18,482,981	18,809,188	20,840,804	22,456,860	23,431,071	22,078,680	22,425,722	247,500,851
Total first six months 1927	19,035,426	19,752,348	22,480,921	22,208,130	23,258,463	22,830,320	26,522,546	26,283,350	24,111,660	24,247,053	23,083,380	22,208,417	276,022,024
Total first six months 1926	13,674,813	12,392,016	14,312,866	14,468,190	14,507,008	14,073,510	14,657,482	14,618,236	14,466,510	15,720,689	16,876,950	17,882,908	177,651,198
Total first six months 1925	15,462,800	13,905,780	14,403,716	14 055,450	14,443,675	13,832,970	14,263,565	14,441,040	14,825,040	14,921,199	14,590,980	14,123,848	173,270,063
Total first six month 1924	12,292,833	12,236,437	13 336,851	13,452,240	14,247,697	14,447,390	15,191,860	16,525,256	16,290,030	16,189,898	15,955,620	16,031,185	176,266,397
Total first six months 1923	13,328,574	12,045,020	13,958,828	14,399,610	15,658,782	15,572,730	15,260,184	14,049,076	12,812,220	12,961,782	12,334,620	12,232,259	165,013,685

When

MAKER AND USER
IT OUT



The Baash-Ross plant about 1921. The original shop, 1919, consisted of one rented building on Ash Street, Brea, employing four men, including proprietors

The top of Signal Hill in 1921, looking toward American Ave. from Cherry Street

Back in 1919

L. F. Baash (above) and H. C. Ross . . . mechanics in the old shop, and still chiefly interested in keeping the shop working closely with the field

SIGNAL HILL ten short years ago . . . and the original Baash-Ross shop at Brea . . . equally striking illustrations of the growth of the oil industry, and of those institutions which adequately serve its growing needs!

Today's 24-hour, "on-the-spot" service, for example, started in that shop. A necessity then, because the shop was small, its equipment limited . . . it took a 24-hour day to turn out its work. The men in from the fields with rush jobs at night, finding the larger plants closed, were often glad to have the small shop down the street do their work.

Regular production stopped; lathes and forge were turned over to the field job. Waiting, field man talked field problems with shop man. Maker and user *together* planned fishing tools, bits, special equipment to fit special requirements. It was natural to bring the next job to the small shop first!

BAASH-ROSS T

General Offices and Plant • 5512 Boyle Avenue

DISTRICT OFFICES: Houston, *1816 Nance Street* . . . Tulsa, *International Supply Company and Lucey Products Corp'n.* . . . **New York, *30 Church Street***

Each of the five Baash-Ross branches and field service shops is larger and better equipped than the original plant in 1919. Taft (left), Ventura (right), and Brea (below)

WORK TOGETHER!

Stocks at the Houston Branch mean quick deliveries to Mid-Continent fields in Texas aad Oklahoma (below). Main Los Angeles plant (left)

The Long Beach shop in the heart of Signal Hill field. Below: At Wilmington Yards large stocks of J & L Seamless Steel tubular goods are on hand for immediate delivery

and in 1929

So it has gone. New demands from the industry . . . new ingenuity to meet them. And then came "boom" days! Mechanics trained on oil field equipment . . . shops located in the heart of active fields . . . were ready. And a fixed policy of careful workmanship . . . the best materials to be had . . . dealing honestly . . . observed even in "flush" times.

Above all, *maker and user still working together.* Men from the shops making daily and nightly tours of the fields, checking performance, alert to new opportunities, new needs, better methods . . . men from the fields still as welcome, in the modern plant of 64,000 square feet, as in the old shop at Brea. The same day-and-night dependability, the same standards, the same open-mindedness to the other fellow's ideas.

Only one major change . . . enormously greater resources with which to serve, in keeping with the giant strides the industry has taken . . . not in California alone, but in the Mid-Continent and fields throughout the world. And even greater determination, within the organization, to deserve the respect and co-operation of the men in the fields, who have made possible the present growth and continued expansion of the business.

TOOL CO.

Box 1110 Arcade Station, Los Angeles

Field Shops *equipped for 24-hour supply and mechanical service at Long Beach . . . Brea . . . Ventura . . . Taft*

J&L PIPE

B-R

Leaders among 200 Baash-Ross Oil Field Tools:

Hosmer Blowout Preventers . . . H & W Rotary Slips . . . Hi-Deck Crown Blocks and Travelling Blocks . . . Slotted Screen Pipe . . . Forged Steel Fittings . . . Tool Joints . . . Washover Tool Joints . . . Drill Collars . . . Drill Stems . . . Cable Tools of all kinds.

J & L Seamless Steel Tubular Goods

Oil & Gas Jrnl. Jan. 31, 1929

SANE DRILLING POLICY IN OKLAHOMA FIELDS

(Continued from Page 123)

covery of the Oklahoma City well. These regions constitute the interesting petroleum history of the state, and to try and determine which of these projects was the most important is a difficult task.

Maud and Little River

The Maud and the Little River Pools are instances of pools where drilling was delayed for a considerable period after the discovery of oil occurred. The Maud area was opened in 1927 by the Barnsdall Oil Co. in its No. 1 Fife, Section 14-8-5. This well tapped the Wilcox sand at 4,291-96 feet, and began flowing 1,190 bbls. daily. The output was pinched in completely pending the working out of an agreement in the region, and then was limited to 50 bbls. daily for almost one year. The well was opened fully in October, 1928, when additional drilling in the pool was permitted. The Wilcox sand possibilities of the Maud area have been disappointing, and it now seems probable that a pool having an area of not more than 300 acres will result from the Barnsdall discovery with the discovering company holding the bulk of the desirable acreage.

To the north of the Barnsdall Fife well, the Indian Territory Illuminating Oil Co. drilled a well SE cor. NE Section 10-8-5, half a mile away. This well was good for 500 bbls. in the Wilcox horizon, but its rapid decline gave thought to the possibility that it was located on the north edge of the structure. The wells immediately east of the Barnsdall Fife well are now finding water in the Wilcox horizon, and the fact that two dry holes drilled, one half a mile east and one location north of this well, and the other half a mile east and one mile north of the well, found the position of the Wilcox sand to be in a sharp dip from the level of the sand at the Fife well gives added reason to believe that little may be expected in that direction.

On the west side of the Maud district, there have been several series of wells all of which have found production in either the Hunton lime or the Misener sand. This activity was started by the Pure Oil Co.'s No. 1 Lindley, SE cor. SW SE Section 18-8-5 which found the Hunton lime at 4,097-4,100 feet, and began flowing 1,800 bbls. The Pure well was drilled into the sand in May, 1928, and immediately after, a conference of operators in the region resulted in shutting in the well. It was thrown open and drilling was started in this territory in October when the Pure well was drilled fully into the lime at a total depth of 4,115 feet, and it increased its production to 3,030 bbls. daily. This started several additional locations drilling with the result that the pool has been extended half a mile north and one location west by the completion of the Independent Oil & Gas Co.'s No. 1 Harding in the SE cor. NW Section 18-8-5 which found the Misener horizon to be productive and began flowing 3,115 bbls. daily. The spread caused by the Independent well caused the territory between it and the Pure Oil Co.'s well to be dotted with derricks, and at this time there are 12 wells drilling in this region which look as if they might be classed in proven territory.

There are now four separate and distinct groups of wells in the west side of the Maud Pool which have found production in either the Hunton or Misener formations, and the groups are distributed over quite a wide area. If they found this production in the Wilcox horizon, there would be ample cause for alarm regarding the productive possibilities of the region, but the past experiences of production in the Hunton and Misener formations have demonstrated that it is inclined to be flashy and the pools have covered a very limited area. For these reasons the potentialities of the west side of the Maud region are rather lightly held, and no big amount of production is anticipated from their pools.

Considering the four groups of wells now found, it seems possible that a peak production of 50,000 bbls. per day might be attained from the west side of the Maud Pool, with of course the added possibility that should the Wilcox sand be found productive in this region, the figures will be subject to a revision.

West Side of Maud Pool

The first well to be drilled in the west side of the Maud Pool was one of the least productive, but it aroused sufficient interest in the territory to be responsible for the work which followed. The Gypsy Oil Co.'s No. 1 Bourassa, SE cor. NE Section 7-8-5, found the Hunton lime 4,090-4,123 feet a few days before the Pure Oil Co.'s Lindley well was drilled in, and the Gypsy well produced 2,100 bbls. daily at the start. The Pure well followed and then the work of developing the west side of Maud began in earnest. These wells form the nucleus of two of the four groups of wells in Township 8-5. The region around the Barnsdall Oil Co.'s Fife well in Section 14 mentioned above, and a few wells drilled in the center of the section line between Sections 10 and 11 form the third group of wells, while the recently found well of T. B. Slick, Inc., and the White Eagle Oil & Refining Co. in the NW cor SE Section 20-8-5 forms the start of the fourth group. Considering the four groups, their geological significance and geographical location, the peak of 50,000 bbls. seems conservative.

The Mission Pool

The Mission Pool just east of the Maud region seemed for a time to hold greater potentialities than any of the outside districts of the Seminole area, and even now it is more or less of an unknown quantity. The Mission Pool is located along the west side of Township 8-6, and extends slightly over into the east side of Township 8-5 in Seminole County. It is situated 4½ miles northwest of the Bowlegs Pool. The Mission region came into prominence when the Gypsy Oil Co.'s No. 1 Seminole Mission in the SW cor. of the SW of Section 5-8-6 was found upon geological correlation to be running high. This occurred in the summer of 1927, and the well was not drilled into the Wilcox sand until June, 1928.

The geological correlations were based upon the position of the Sylvan shale and the Viola limestone, and when the Gypsy Oil Co. ascertained the well to be running high it shut the operation down and it remained in that status for one year. The well was drilled into the Wilcox sand in June, 1928, when the owners of leases in this sector failed to make any further continuations of their shut-down agreement, and insisted upon a drilling program. When first drilled into the sand the well produced 3,200 bbls. from sand, 4,327-40 feet. The rush to develop the Mission did not start until fall, as the Seminole Advisory Committee managed to hold the operators in check during the early fall days. November 15 was the date upon which the Mission region was officially thrown open to the drill, with the provision that February 15, 1929, was to be the date upon which the wells were to be officially completed.

First Producing Well 4,020 Bbls.

In the time intervening between the penetration of the Wilcox sand by the Mission well of the Gypsy company and the date upon which the field was thrown open to the drill there were several wells drilled into the sand, and some slight idea of the possibilities of the Mission were obtained. They sufficed to encourage the drilling campaign which followed. In the first part of August, the Gypsy Oil Co.'s No. 1 Barkus drilled the Wilcox 4,206-15 feet and flowed 4,020 bbls. This well is located SE cor. SW Section 6-8-6, one-half mile straight west of the Mission well. One-half mile south of the Mission well there was a dry hole which did much to stop the drilling activity. This was drilled in the NW cor. of the SW of Section 8-8-6, and it was abandoned at 4,537 feet when a hole full of water was found in the Wilcox sand.

Further discovery of two light wells south of the Mission well tended to slow up the south trend. The Mid-Kansas Oil & Gas Co.'s No. 1 Esthemalde, NW cor. SW SE Section 7-8-6, was good for only 175 bbls. daily from the Wilcox horizon, and the Marland Oil Co.'s No. 1 Mathis, NE cor. SE SW Section 7-8-6, was good for 700 bbls. daily in the Wilcox. There has been a very limited amount of work done south of these wells.

The greatest amount of drilling in the Mission region is centered around the north part of Section 7 and the south part of Section 6-8-6, and now that the wells are approaching an interesting depth and several of them have set 8-inch casing, the geological inspection of the locality indicates that a number of the wells are running low, and that the prospects of the pool have been dimmed on that account.

Developing Little River

The Little River Pool, the cause of much discussion and dissension, reached its peak this year when it made 138,590 bbls. This occurred October 2, 1928. The field was brought into prominence this year when the plan of starting 10 test wells, the cost of which was to be borne by the owners of adjacent acreage, was initiated. The test well plan (originated by R. B. Pringle, vice president of the Independent Oil & Gas Co.) worked very well in this area, and by its machinations, 10 wells spaced half a mile apart were drilled in the north part of Township 7-6. The wells afforded an excellent idea of the subsurface conditions, and resulted in the drilling work later in the year. There was also one excellent result of the test well plan, and that was that it afforded an idea of where not to drill. Had it not been for the workings of the test well plan, the east side of the Little River Field would have been dotted with a great number of dry holes, because for a time it appeared that that was to be the most productive section of the pool. The field has held its output very well, and at the close of the year was making 86,000 bbls. daily, and later passed the 90,000-bbl. mark. For a field which had a good deal of gloom thrown over its prospects at the start of the drilling campaign, the Little River Field has surpassed the expectations of production students.

The air-lift has done a wonderful work in sustaining oil production at Little River, and while the field is drilled up, with the exception of some possible extension on the west side, there is little more to expect from the Wilcox sand in this region. The more shallow sands, however, have possibilities at Little River. T. B. Slick's No. 1 Wood, NE cor. SW Section 26-7-6, in the south end of the Little River Field found some oil in the Cromwell sand at 3,400 feet. Just how much oil the well would have made originally had it encountered the sand under normal drilling conditions with the casing set well above the sand and ordinary precautions taken is problematical, but the well was intended for a Wilcox test, and found that horizon dry. There had been a very strong showing recorded farther up the hole, and when the lower sand was barren, the owners decided to test out this formation. The Cromwell sand was at 3,400 feet, was plugged back from the Wilcox and 1,500 bbls. of fluid per day, which was one-third oil and two-thirds water, was the result. This discovery resulted in the drilling of several wells with the Cromwell sand as their destination, and these have not yet been completed.

Could Not Hold Back St. Louis

The St. Louis Pool of Pottawatomie County was sensational and unfortunate in one respect. This was the only pool to be encountered in the south country in which the efforts of the conservationists failed utterly. The St. Louis district had been producing oil from the Hunton lime for the past two years, but when the Magnolia Petroleum Co. discovered oil in the Wilcox sand in Section 19-7-5, there were a few wells started. The Magnolia well was No. 1 Hembree, NW cor. SE Section 19-7-5, and T. B. Slick owned the lease offsetting the Magnolia property to the east. Mr. Slick started drilling operations and when his well came in, drilled it 18 feet into the sand. The Slick well started flowing 9,000 bbls. daily, and the race at St. Louis was on.

A group of wells was started with the Wilcox sand as the goal, and the only thing which saved the industry from utter demoralization as a result of the drilling frenzy at St. Louis was the [illegible] that the Wilcox sand structure was no way like the structure of the Se[illegible]nole group of pools. The St. Louis W[illegible]cox proved to be a rather small structu[illegible] just like the other small Wilcox regio[illegible] which had been found prior to Semin[illegible] The production from this horizon at St[illegible] Louis covered only 300 acres approx[illegible]mately, and the peak production for t[illegible] pool was 140,120 bbls. established [illegible] December, 1928.

There is one trouble with the St. Lo[illegible] region, and that is that there contin[illegible] to be several fingers of production e[illegible]tirely separated from the main body [illegible] Wilcox sand production, but of sufficie[illegible] importance to start a few drilling oper[illegible]tions. There have been two of the[illegible] conditions found adjacent to the S[illegible] Louis Pool, the first in Section 25-[illegible] where The Texas Company and the Fu[illegible]man Petroleum Co. of Okmulgee fou[illegible] the Wilcox sand good for 4,000 bb[illegible] daily in No. 1 Cherry, SW cor. NW N[illegible] and the second instance T. B. Slick's N[illegible] 1 Davis in Section 18-7-5. The Sli[illegible] well is comparatively new and is mak[illegible] 5,000 bbls. per day. It was a Christm[illegible] present and was discovered December [illegible]

While very limited in area, the regi[illegible] discovered by The Texas Company a[illegible] Fuhrman is adding 25,000 bbls. daily [illegible] the increasing output of the state, a[illegible] it seems logical that the region aroun[illegible] the Slick well should soon contribute [illegible] similar amount. It is such localities a[illegible] these rather than the larger pools whi[illegible] are helping keep the output of Oklahom[illegible] around 720,000 bbls. daily.

The Growth of Allen

The discovery of Wilcox sand produc[illegible]tion in the Allen district was of grea[illegible] importance, mainly because it compelle[illegible] a most complete revision of the forme[illegible] estimates regarding that territory an[illegible] also the country to the south and east [illegible] Allen. The Allen deep sand is credite[illegible] with reviving interest in the Pontotoc[illegible] Coal County territory which has had se[illegible]eral lease activities. The Allen Wilco[illegible] sand oil was discovered by the Sinclai[illegible] Oil & Gas Co. in its No. 2 Amos, SE co[illegible] NE SW Section 7-5-8. The well found[illegible] the sand at 4,255 feet and with 6 inche[illegible] of sand drilled, started making 37 bbl[illegible] an hour. It has been shut in since dis[illegible]covery but is being opened as this [illegible] written.

Just what may be expected of the[illegible] Allen region in the matter of deep sand[illegible] production is too remote for even th[illegible] boldest of guesses. The flow of the wel[illegible] was good while it lasted, but the wel[illegible] was never given much of a test. The fac[illegible] that the Wilcox carries oil in this region[illegible] is of more importance than locating the[illegible] production, for it means that the entire[illegible] territory has been reclaimed from the[illegible] condemned class, and that it will prob[illegible]ably be the scene of a drilling campaign[illegible] when market conditions and crude oil[illegible] prices are more favorable.

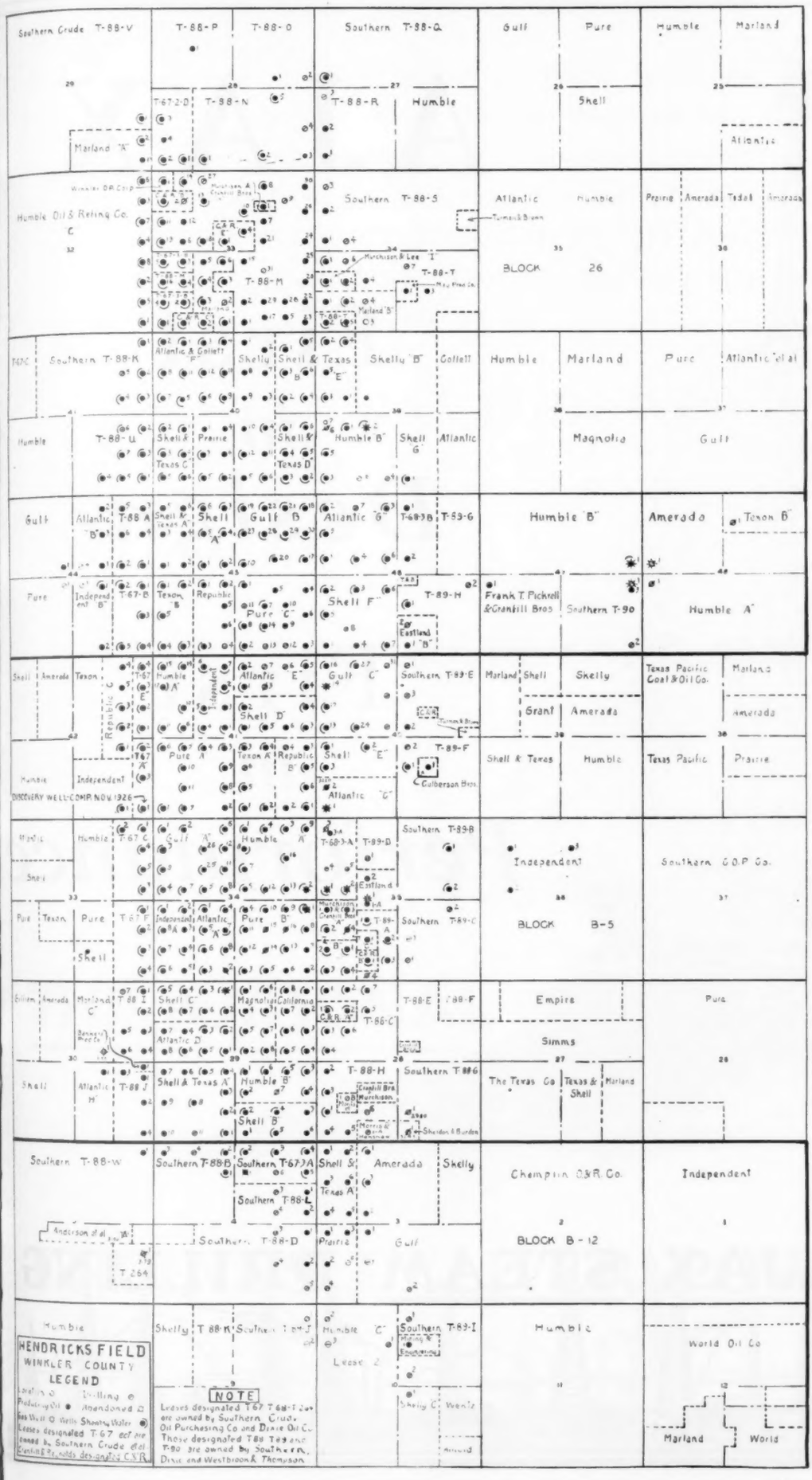
Oklahoma City Pool

The discovery of oil in the Oklahoma City well brought a blazing finish to the year 1928. This well was drilled by the Indian Territory Illuminating Oil Co. and was No. 1 fee, C SE SE Section 24-11-3w. It found a formation which was later identified as Hunton lime at 6,402 feet, and the hole began filling with oil. The well started flowing when 10 feet of the sand was drilled. Further penetration increased the flow of the well to 5,800 bbls., and it now has a total depth of 6,498 feet.

This well has an exceptionally interesting history. It was located upon a very large structure which is reported to have been located by surface geology. The owners felt sufficiently sure of the prospect of finding a well to invest a very great amount of money in oil and gas leases and also in royalties in the region. When some good oil showings were found, a battery of tankage was constructed on the lease, and every preparation was made for handling a big well.

When the Hunton was penetrated, there was considerable discussion regarding its identity, various geologists disagreeing about it. There were some who

(Continued on Page 193)



YEAR OF BIG EVENTS IN WEST TEXAS FIELDS

(Continued from Page 118)

pipe lines, both of which are reviewed in other articles of this issue.

WEST TEXAS COMPLETIONS BY COUNTIES YEAR 1928

County—	Comp.	Prod.	Dry	Gas
Andrews	5		5	0
Borden	2		2	0
Brewster	3		3	0
Coke	3		3	0
Concho	6		6	0
Crane	45	14,164	10	0
Crockett	44	2,958	29	1
Culberson	5		5	0
Ector	2		2	0
Fisher	10	2,903	4	0
Garza	2		2	0
Gaines	1		1	0
Glasscock	7	280	6	0
Howard	149	94,097	15	2
Irion	9	7	8	0
Jeff Davis	1		1	0
Jones	56	11,320	19	0
Kent	3		3	0
Loving	10	561	3	0
Lynn	1		1	0
Martin	1		1	0
Menard	7		7	0
Midland	3		3	0
Mitchell	10	370	6	0
Nolan	2		2	0
Pecos	263	2,951,484	53	0
Reagan	43	5,806	10	0
Reeves	6		6	0
Runnels	20	507	16	1
Sterling	2		2	0
Stonewall	2		2	0
Schleicher	2		2	0
Sutton	2		2	0
Taylor	9		9	0
Terrell	3		3	0
Terry	1		1	0
Tom Green	5		5	0
Upton	18	4,179	11	0
Val Verde	4		4	0
Ward	4		4	0
Winkler	487	2,461,329	30	9
Total 1928	1,258	5,549,965	307	13

WEST TEXAS COMPLETIONS BY MONTHS

Month—	Comp.	Prod.	Dry	Gas
January	82	336,862	14	1
February	102	222,861	26	2
March	99	285,981	28	3
April	71	227,670	21	0
May	94	355,755	26	1
June	101	517,920	25	1
July	139	744,956	37	3
August	149	1,021,999	30	1
September	112	839,836	21	0
October	99	431,668	23	0
November	125	239,740	31	1
December	85	324,727	25	0
Total 1928	1,258	5,549,965	307	13
Total 1927	915	1,058,948	243	6
Difference	343	4,491,017	64	7

SANE DRILLING POLICY IN OKLAHOMA FIELDS

(Continued from Page 190)

claimed that the well was in the Viola lime, while others maintained that it was producing from the Siliceous lime below the Wilcox sand, and that the Wilcox was missing entirely. The well had been producing for several days before any of the drill cuttings were available, and after microscopic examinations of these were made, there was the decision that the oil was coming from the Hunton.

The well at that time was making 5,300 bbls. daily, and the general public was surprised when the owners decided to kill the flow, and try and drill the well deeper to the Wilcox. Mud was put into the well in an effort to kill the flow, but when the casinghead was opened, the well immediately purged itself of the mud. The pressure was strong enough to resist any and all efforts at killing the flow, and so the owners decided to let it flow for a time and weaken the pressure. The well was ultimately drilled to the present total depth of 6,498 feet, and that's all the drilling progress that can be made at present. Eventually the well will be drilled down to the Wilcox sand, according to the report of the owners.

This well has caused a greater revision regarding former geological opinions than any which has been drilled in Oklahoma for many years. It opened to heavy lease trading the territory between it and the Greater Seminole Field which had been more or less active, and more important still it opened to trading the region west of Oklahoma City and situated between Oklahoma City and the old Chickasha gas field. Little attention had been paid to this territory for the past few years, but the finding of oil at Oklahoma City changed the entire aspect for the region.

It has been mentioned that the Oklahoma City well precedes the development of another Seminole Pool; that it is a

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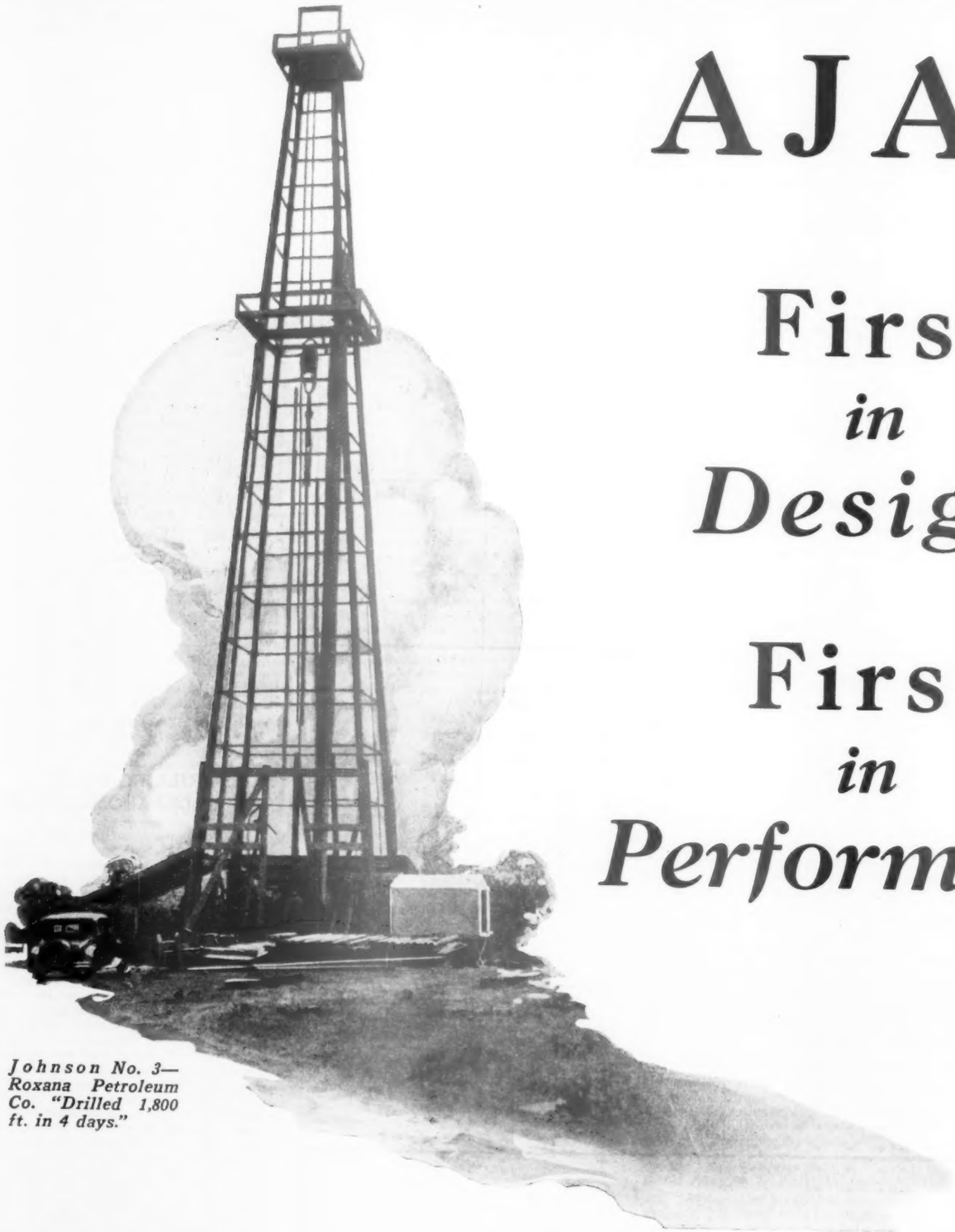

Johnson No. 3—Roxana Petroleum Co. "Drilled 1,800 ft. in 4 days."

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geological condition similar to the Seminole area, a mountain flank condition. There also has been much cold water thrown upon the discovery on account of its making its production from the Hunton lime instead of from the Wilcox sand. As to the first matter, time alone will tell, and there will be no big drilling rush with 6,400 feet to make; and as to the second, the well is a big producer regardless of the origin of the oil.

Oklahoma produced 247,500,851 bbls. of crude oil in 1928 as against 276,500,851 bbls. in 1927 and 177,651,198 bbls. in 1926. The group of five pools comprising the main body of the Seminole Field produced 105,025,123 bbls., or 42.4 per cent of the State's crude output. In 1927 the same pools in the Seminole Field produced 135,951,098 bbls., or 30,925,975 in excess of their record last year. The St. Louis-Pearson field produced 21,234,913 bbls. last year and 812,600 bbls in 1927. The production of the pools making up the Seminole Field for 1928 and 1927 was as follows: Seminole City, 1928, 18,237,004 bbls. and in 1927, 47,039,644 bbls., a decline of 28,802,640 bbls.; Earlsboro, 1928, 33,321,824 bbls. and in 1927, 36,885,196 bbls., a decline of 3,563,372 bbls.; Bowlegs, 1928, 23,800,896 bbls. and in 1927, 36,649,733 bbls., a decline of 12,848,837 bbls.; Little River, 1928, 24,447,158 bbls. and in 1927, 5,144,014 bbls., an increase of 19,303,144 bbls.; Searight, 1928, 5,218,241 bbls. and in 1927, 10,232,511 bbls., a decline of 5,014,270 bbls.

OKLAHOMA

Summary of Completions by Counties

County—	Comp.	Prod.	Dry	Gas
Carter	108	16,451	18	3
Creek	301	22,494	137	42
Grady	144	1,724	25	99
Jefferson	62	2,523	21	2
Kay	149	3,094	73	59
Muskogee	428	5,252	189	40
Okmulgee	252	1,832	114	52
Okfuskee	97	8,737	27	12
Osage	311	50,024	68	35
Pontotoc	131	21,611	37	17
Pottawatomie	291	316,649	30	4
Seminole	596	517,032	133	13
Stephens	269	20,596	93	21
Tulsa	91	1,801	49	14
Wagoner	46	77	31	9
Garvin	16	202	9	1
Hughes	28	1,310	15	3
Logan	40	18,163	12	6
Marshall	13	315	4	0
Noble	7	0	6	1
Cotton	15	330	7	1
Pawnee	38	260	21	11
Sequoyah	4	0	2	2
Tillman	4	0	4	0
Canadian	2	0	2	0
Cimarron	6	0	6	0
Caddo	17	485	6	1
Payne	19	570	9	2
Grant	19	1,187	8	5
Beckham	14	0	4	10
Pittsburg	6	0	0	6
Rogers	40	664	12	5
Craig	1	0	1	0
Nowata	31	300	11	2
Washington	28	112	6	1
Coal	2	0	2	0
Lincoln	11	2,109	4	1
Johnston	2	0	2	0
Garfield	11	89	6	1
Mayes	2	9	1	1
Comanche	6	7	5	0
Kingfisher	2	0	2	0
Kiowa	3	0	3	0
McIntosh	2	0	1	1
Major	1	0	1	0
Bryan	2	0	2	0
Cherokee	1	0	1	0
Cleveland	2	0	2	0
Greer	1	0	1	0
Leflore	3	0	1	2
Love	1	0	1	0
Texas	2	0	1	1
Murray	1	0	1	0
Total 1928	3,679	1,016,000	1,227	491

Summary by Months

Month—	Comp.	Prod.	Dry	Gas
January	309	41,625	99	63
February	280	51,955	114	42
March	288	37,562	86	50
April	378	59,762	146	67
May	295	85,090	111	40
June	271	52,161	101	30
July	354	68,489	117	54
August	266	115,540	79	25
September	315	214,738	93	31
October	370	140,718	107	38
November	281	68,049	87	27
December	272	80,311	87	24
Total 1928	3,679	1,016,000	1,227	491
Total 1927	4,513	1,971,081	1,443	508
Difference	834	955,081	216	17

Oklahoma Results Past Few Years

Year—	Comp.	Prod.	Dry	Gas
1928	3,679	1,016,000	1,227	491
1927	4,513	1,971,081	1,443	508
1926	5,352	986,502	1,735	498
1925	4,987	879,558	1,578	471
1924	4,814	1,211,466	1,308	468
1923	5,883	1,277,936	1,731	587
1922	6,148	1,190,165	1,428	571
1921	5,715	589,298	1,507	670

BOGGY CREEK DEVELOPMENT SOLE FEATURE IN EAST CENTRAL TEXAS

By Neil Williams

Interest in the East Central Texas district during 1928 was largely centered in the development of Boggy Creek, the first inland salt dome field, and in the wildcatting on the other geophysical domes found to exist in that area comprising Anderson, Cherokee, Smith, Rusk and Van Zandt Counties.

Operations in the structure and fault areas of East Central Texas were practically at a standstill. A comparatively small number of scattered tests were drilled and some shallow wells in and around the Mexia, Powell, Currie and other fields were completed, but very little materialized of importance, and at the close of the year only eight rigs were active in the entire district, not counting Boggy Creek.

With the general let-up in drilling during the year it generally was conceded that the future of East Central Texas rested largely on the development of production in the inland salt dome district or in the finding of oil in the Trinity sand. One test for the Trinity sand was undertaken in the Mexia district by C. F. Lytle and associates who put down a hole to 6,001 feet, or just over the contract depth of 6,000 feet. This test found some minor showings at various levels, but failed to find the Trinity and at present is temporarily abandoned until arrangements can be made to deepen it.

Proving Boggy Creek

The proving up of a sizeable field at Boggy Creek on the Anderson and Cherokee County lines stands out as one of the important events of 1928. Although the first production was found as early as April, 1927, the discovery well (Humble Oil & Refining Co.'s No. 1 Elliott Clark) went to salt water, and it was not until this year that the field began to accumulate production figures.

The discovery well was far to the north of where production is being developed. That well, which came in during April, 1927, flowing at the rate of 50 bbls. an hour, was shut in at once for storing and when opened the following month showed only salt water. It was then that the Humble shifted to the southeast flank of the dome and in February brought in its second well, No. 1 Lizzie Smith flowing 80 bbls. daily from a sand at 3,732 feet. This well later in September was deepened to 3,766 feet and came in flowing at the rate of 400 bbls. an hour, making the best well so far completed at Boggy Creek.

A total of nine producing wells has been completed at Boggy Creek and all except the discovery well, No. 1 Elliott Clark, are yet producing. Substantial extensions of production, both to the north and to the southwest around the flank of the dome, are being made continually with the present limits of production extending a distance of over a mile and a half.

The latter part of November a wildcat (No. 1-A Todd), flowing 113 bbls. an hour, was brought in approximately 4,200 feet southwest of the nearest well, this being followed by the completion of Humble's No. 4 Mandalstam (drilled by E. L. Smith as No. 1 Neches River), a sizeable extension to the north in the direction of the discovery well.

An 8-Inch Pipe Line

Humble Pipe Line Co. has under construction an 8-inch line extending from the field to Groesbeck, a distance of more than 60 miles, where a connection will be made with the company's main line to the Gulf. Some production at present is being moved through a small, short line to loading racks at Frys Gap, and the remainder is being run to storage.

Although all wells have been pinched in and only necessary drilling has been done, the daily average production has mounted to as high as 4,600 bbls. at times, but at the close of the year it was being held to around 3,000 bbls. The entire dome's acreage is being held jointly by the Humble Oil & Refining Co. and the Rio Bravo Oil Co., which eliminates any competitive drilling among companies.

These operators have kept up a wildcatting program on other flanks of the dome, namely the northeast in Cherokee County, and the northwest in Anderson County, but so far the only production has been on the southeast, which is found from 3,700 to 3,800 feet.

Failures on Other Domes

Other inland domes of this area have failed to develop any production, although operators have kept up occasional drilling throughout the year. Gulf Production Co. drilled three tests on its Bullard Dome prospect in southern Smith County, to the north of Boggy Creek. Pure Oil Co. drilled on its Bethel Dome in Anderson County. This company's latest test, No. 2 Douglass, has drilled into salt since the first of the year. J. S. Cosden and associates had a rig running on the Keechi Dome, also in Anderson County, as did The Texas Company in Rusk County. Several miscellaneous wildcats were put down unsuccessfully in Cherokee and lately the Pure Oil Co. is starting another rig in Van Zandt County.

Completions by fields and months during 1928 were:

EAST CENTRAL TEXAS

Completions by Counties

	Comp.	Initial prod.	Dry	Gas
Anderson	18	8,629	8	2
Angelina	0	0	0	0
Camp	2	0	2	0
Cherokee	8	504	7	0
Falls	2	0	2	0
Freestone	4	0	4	0
Henderson	3	0	3	0
Kauffman	1	0	1	0
Leon	0	0	0	0
Limestone	25	376	20	1
Nacogdoches	1	0	1	0
Navarro	13	0	13	0
Madison	0	0	0	0
Milam	1	10	0	0
Rusk	1	0	1	0
Smith	5	0	5	0
Total 1928	84	9,519	67	4
Total 1927	89	4,856	72	3
Difference	5	4,663	5	1

Completions by Months

	Comp.	Initial prod.	Dry	Gas
January	4	125	3	0
February	7	85	6	0
March	5	125	4	0
April	7	0	7	0
May	3	0	3	0
June	7	0	7	0
July	6	200	4	1
August	12	2,160	10	1
September	12	472	10	0
October	7	600	4	1
November	5	2,410	3	0
December	9	3,342	6	0
Total 1928	84	9,519	67	4
Total 1927	89	4,856	72	3
Difference	5	4,663	5	1

Still Actively Leasing

Leasing continues active throughout the inland salt dome area with both large companies and small operators getting blocks together. At present virtually all acreage between the Boggy Creek Dome, Bethel, Keechi and Bullard Domes has been taken up, covering nearly all the northern half of Anderson County. Smith and Van Zandt Counties to the north and Cherokee County to the east all is in the heart of the play.

The shallow pools in Angelina and Nacogdoches Counties in the extreme southeastern part of the East Central Texas division also were inactive during the year. Two wildcats were started in

(Continued on Page 217)

East Central Texas

Daily Average and Monthly Production in 1928

	January (bbls.)	February (bbls.)	March (bbls.)	April (bbls.)	May (bbls.)	June (bbls.)	July (bbls.)	August (bbls.)	September (bbls.)	October (bbls.)	November (bbls.)	December (bbls.)	Total (bbls.)
BOGGY CREEK—													
Daily average	.....	.....	.....	.....	.....	.....	325	1,360	2,156	2,003	1,576	2,777	
Month	.....	.....	.....	.....	.....	.....	10,080	39,046	64,686	62,093	47,280	86,087	309,272
CEDAR CREEK—													
Daily average	648	465	620	547	592	567	511	431	351	280	187	218	
Month	20,088	13,485	19,220	16,410	18,352	17,010	15,840	13,360	10,540	8,670	5,610	6,758	165,343
CURRIE—													
Daily average	527	586	530	507	507	502	481	557	621	580	522	503	
Month	16,337	16,994	16,430	15,210	15,717	15,059	14,912	17,270	18,615	17,978	15,660	15,593	195,775
MEXIA—													
Daily average	7,596	7,495	7,485	7,289	7,116	7,066	6,967	6,810	6,644	6,585	6,348	6,303	
Month	235,445	217,355	232,035	218,670	220,596	211,977	215,982	211,099	199,334	204,142	190,440	195,393	2,552,468
MINERVA—													
Daily average	996	995	959	912	880	860	858	814	802	707	701	739	
Month	30,871	28,868	29,969	27,363	27,288	25,288	26,610	25,225	24,060	21,915	21,030	22,909	311,386
NIGGER CREEK—													
Daily average	765	838	771	743	637	639	612	601	508	479	421	477	
Month	23,715	24,302	23,901	22,290	19,747	19,166	18,958	18,622	15,235	14,850	12,930	14,787	228,503
POWELL—													
Daily average	12,611	12,066	12,151	11,708	11,414	11,388	10,920	10,566	10,452	10,108	10,082	9,667	
Month	390,941	349,914	376,681	351,240	353,834	341,651	338,533	327,550	313,556	313,352	302,460	299,677	4,059,389
RICHLAND—													
Daily average	528	583	530	541	657	601	535	517	486	478	513	481	
Month	16,368	16,037	16,430	16,230	20,367	18,042	16,578	16,016	14,579	14,806	15,390	14,911	195,753
Thrall—													
Daily average	44	40	41	34	38	34	35	34	22	33	32	35	
Month	1,371	1,140	1,263	1,132	1,197	1,050	1,090	1,068	645	1,035	969	1,085	13,036
WORTHAM—													
Daily average	2,008	2,041	2,098	1,964	1,904	1,901	1,776	1,734	1,673	1,621	1,535	1,542	
Month	62,248	59,189	65,038	58,920	59,024	57,026	55,045	53,760	50,200	50,280	46,050	47,802	664,582
Daily average	25,722	25,079	25,185	24,245	23,745	23,558	23,020	23,324	23,715	22,874	21,927	22,742	23,758
Total 1928	797,384	727,284	780,967	727,455	736,122	706,269	713,628	723,016	711,450	709,120	657,810	705,002	8,696,507
Total 1927	1,479,568	1,398,208	1,442,564	1,254,690	1,066,028	1,032,720	1,002,230	960,659	873,720	929,845	856,470	865,334	13,162,026
Total 1926	1,928,851	1,759,548	1,822,614	1,763,970	1,703,853	1,557,780	1,562,437	2,198,365	1,865,970	1,731,598	1,558,890	1,734,047	21,387,923
Total 1925	4,376,886	4,518,416	4,388,917	4,111,590	3,863,376	3,379,740	3,103,286	2,887,433	2,568,480	2,454,549	2,194,920	2,172,325	42,519,917
Total 1924	4,177,591	4,241,507	5,073,367	4,629,510	4,283,859	3,918,390	4,034,193	3,971,984	3,887,090	3,898,173	3,440,450	3,917,393	49,473,507
Total 1923	2,010,702	1,780,465	1,996,015	1,833,301	1,928,871	2,209,222	3,854,199	5,431,982	6,733,020	9,090,616	9,646,587	4,262,302	50,817,382

Wildcatting Campaign Plans for 1929

Notwithstanding Overproduction, the Search for New Oil and Gas-Producing Areas Will Go On

Notwithstanding crude oil production in 1929 threatened at the opening of the year to break all records, plans for wildcatting in all of the States west of the Mississippi River in which oil is produced were already perfected or were being brought to a climax. The drill will be busy in many spots far removed from production, while efforts to extend pools that came in in 1928 will go on, although perhaps under self-imposed restrictions.

The wildcat plays in 1929 in Oklahoma seem destined to be confined in the main to three major activities. Two of these are a direct result of the discovery of oil at Oklahoma City, while the third is the result of the discovery of Wilcox sand production in the Allen Field of Hughes-Seminole-Pontotoc Counties.

When the Oklahoma City well was drilled into the Hunton lime, there was a rapid and complete revision of the geological opinion regarding the entire territory west of the Seminole and St. Louis regions.

After the discovery of oil at Oklahoma City, the region situated on a line between the Greater Seminole Pools and the new well seemed much more desirable, and apparently had a much better chance for production. The lease activity therefore was carried all the way across Pottawatomie County straight through the northern end of Cleveland County towards the well. It was even carried past the well into the western part of Oklahoma County.

The second play which might be termed a reflex action of the Oklahoma City well is that there will be considerable activity on a line running from the well to the Chickasha gas field in Grady County, and the old Cement Field in Caddo County. This line runs through northwestern Cleveland County, the north tip of McClain County, through Gray County on a southwest-northeast trend, and into the west side of Caddo County. It is possible that the play will carry into the northeast corner of Comanche County.

The Allen deep discovery means that a new play will be given to the east side of Pontotoc County, the north end of Coal County and possibly the east edge of Pittsburg County. It was formerly thought that the Wilcox sand in this region would be found at a depth of 9,000 feet or greater, and for this reason primarily, there was little exploration work done. The finding of Wilcox sand in Section 7-5-8, at a depth of 4,250 feet has changed the entire complexion of this region, with the result that there is a great probability of extensive wildcatting being done in this general region.

These plays mentioned above seem destined to form the major activity for 1929 in Oklahoma wildcatting as far as futures may be estimated.

Prospecting in Kansas

The discovery of production in Sedgwick County, Kansas, during the fall of 1928 shifted the major wildcat activity from the western Kansas fields to the Sedgwick and Harvey County territory. These two counties are especially active at this time, with every prospect of a continuation of the work until at least a much better idea of the possibilities of the region is obtained.

Western Kansas dominated the leasing activity during 1927, when some 80 blocks of acreage were assembled. Many of these blocks were taken upon the evidence furnished by the work of the core drill, and some of them were checked by the seismograph.

The play which last year was apparent in the Saline Basin country has become rather quiet, while farther west in the Great Plains district, there has been considerable activity, especially in the Ellis County region. Ellis, Russell and Ness Counties have been given close attention in the matter of geological surveys and the drilling of selected wells in this territory has been facilitated by the interest maintained by the larger companies which made the sale of acreage rather easy in attractive localities.

The coming year seems destined to have the play in Sedgwick and Harvey Counties lead the Kansas activity, and with the production which has already been dissovered in this area, there is every possibility of the development of one or more pools similar to those in the Eldorado Field.

In West Texas

Despite the fact that West Texas is burdened with production the 1929 wildcat campaign is expected to be extensive. Independent operators are active in assembling blocks as are the major companies. At the opening of the year it appears the most active wildcat leasing "play" will be in the western part of the South Plains Country.

The southeastern New Mexico exploration the latter half of 1928 swung the campaign in that direction and the border counties on the eastern side of Lea County have been and are being leased rapidly. Several wells are scheduled to be drilled in that general and wide area before the end of the first half of the year.

The entire South Plains country has been more or less active for the past year. Geophysical crews have worked that territory and caused flurries of leasing campaigns. However, the great bulk of the leasing has been in the western half of the territory and in particular the counties of Cochran, Hockley, Yoakum and Terry.

Counties west of the Pecos River are scheduled to get a share of the wildcat drilling and it is expected those counties just east of the river will get their quota.

Virtually all of the major companies are reluctant to make wildcat campaigns of their own and still, to a great extent, follow the policy of buying spreads around tests that are favored by geological departments. Such a policy was started early last year. Some companies owning big blocks are reluctant to drill them because of the fear more oil will be found to add to the flood.

Many expect wildcatting to be more extensive this year than last year because of the increased outlet for West Texas crude. Some of the pipe line companies are not fortified with the crude reserves in West Texas to insure operation of those lines at maximum capacity over a long period. Producing companies affiliated with those companies are expected to be more aggressive in the search for new production.

At the present, however, it appears the west part of the South Plains country will be the most active wildcat territory for the first few months in 1929.

Will Explore Salt Domes

Geophysical exploration which has been carried on in southern Texas and southern Louisiana resulting in the discovery of 34 new domes or prospects during the year 1928 alone has paved the way for what may be an active wildcatting program in the Gulf Coast during 1929.

Although these domes are scattered over the entire Coastal territory, 17 being in Texas and 17 in southern Louisiana, the most interesting wildcatting probably will be in the eastern half of Coastal Louisiana, where the majority of that State's new domes have been found.

Southeastern Louisiana is of particular interest at present from a wildcatting standpoint because of its newness to the drill, virtually that entire territory never before the past year having been prospected for domes or hardly scratched by the drill. The reaching out into that area on a large scale followed the discovery of the first oil east of the Mississippi River on the coast at Sorrento, Ascension Parish, by the Gulf Refining Co. only last February.

May Develop Big Pools

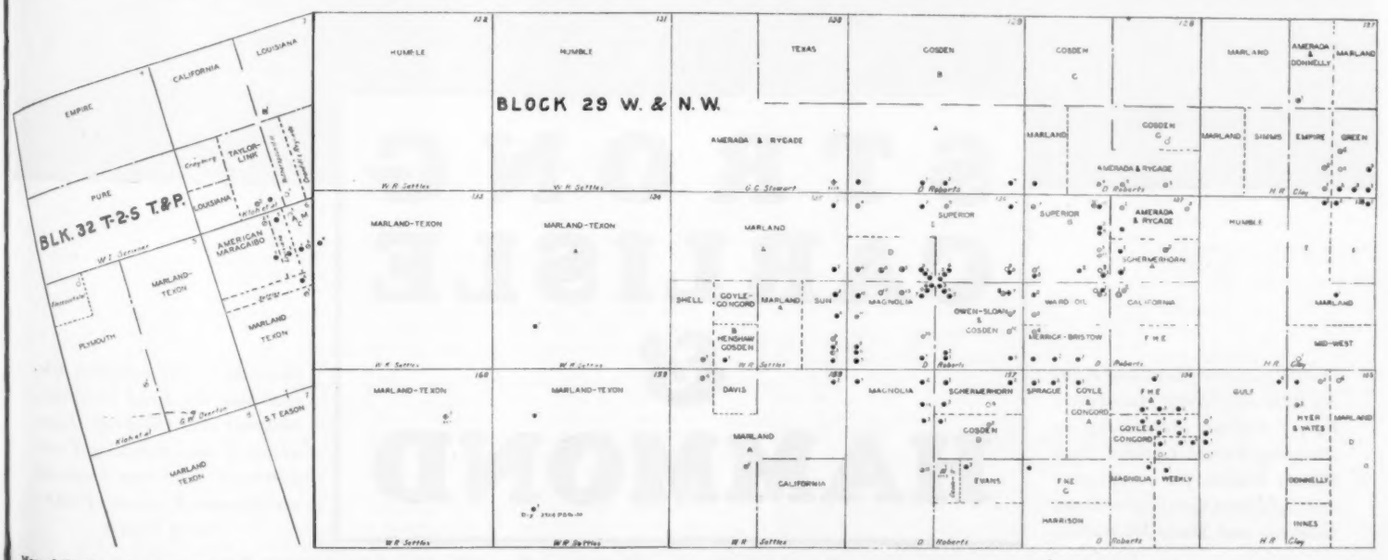
That there is no known reason why salt domes of southwestern Louisiana and southeastern Texas should hold a monopoly on all Coastal crude makes it not at all improbable that some of southeastern Louisiana's new prospects will be just as productive as some of the famous fields of the Coast such as Spindletop, Humble, Jennings or Vinton. The new domes perhaps will not yield the spectacular flush production as did the old fields due to the controlled unit ownership of nearly all of them but the ultimate yield may be as great if not greater.

Virtually all of the 34 new domes will be given at least one test. On some drilling already has been started. In addition drilling will be continued steadily on each of the other 32 geophysical domes discovered since 1924 of which only 11 so far have proved productive. This does not include wildcatting which will be carried on around the old domes, some of which are unproductive despite years of drilling. As few domes have been drilled on all sides or on every sector on top, there are extensive opportunities for wildcatting not only on the new domes but on most of the old domes. Even the pioneer and spectacular Spindletop Dome has been drilled only in part. New pools are being found at different points on nearly all the old domes and operators are constantly keeping up their drilling on them in search of these new pools.

The Texas Company's Big Program

Of particular interest in southern Louisiana will be the wildcatting program to be carried on by The Texas Company in developing nine dome prospects recently checked by the Louisiana Land & Exploration Co. and the latter company's

(Continued on Page 210)



Map of the Dora Roberts Pool in Southern Howard County, Texas. Five pay zones have been discovered in this area, two in sand and three in lime. The lime producing zones are the most productive and are responsible for the climb in Howard County production. A cross section of this area was published on page 30 of July 10 issue of The Oil and Gas Journal.

Strong Separators on the job

HIGHEST operating efficiency was demanded. Tests were made. And then the Independent Oil & Gas Company installed Strong Oil Separators on the compressors in their Flowing Plant at St. Louis, Oklahoma.

The Strong Oil Separator removes more than 99% of the entrained liquid—oil, gasoline or water.

It is distinguished by its design as a scientific machine. The double whip-snapping motion imparted to the gases or steam by the sudden direction changes, throws the heavier particles through the cage. The slug does not come in contact with the gas or steam current but is removed before entering the Separator chamber. The full effect of the separating mechanism is therefore used for extracting only the entrained moisture.

Strong Separators are made in 3 to 10 inch sizes, in both Horizontal and Vertical Types, of semi-steel or cast steel. Large stocks mean prompt shipments. Strong Separators are described in *Bulletin 100-A,* the Refinery and Gasoline Plant Catalog. Ask for it.

STRONG CARLISLE & HAMMOND

For the gasoline plant and refinery there are Strong Anti-Freeze Relief Valves, Atomizing or Blending Valves, Cushion Non-Return Valves for compressor and field lines, Gas Engine Stops, Gasoline and Steam Separators,

Gasoline Level Controllers, Mineral Seal Oil Level Controllers, Mineral Seal Oil Traps, Separating Traps, Vacuum Traps, Lifting Traps, Steam Traps, and combination Vacuum-Pressure Relief Valves.

MANUFACTURERS OF STRONG SPECIALTIES — CLEVELAND, OHIO

KANSAS FIELDS

(Continued from Page 68)

and abandoned at 3,025 feet. Kentucky Nitrogen & Oxygen Co.'s No. 1 Fulls, NW cor. NE NW, Section 18-33-7, has been completed for 1,500,000 feet of helium gas in sand at 973-77 feet. No. 2 Melick, NE cor. SW, Section 13-34-6, made 4,000,000 feet of helium gas in sand at 1,145-50 feet.

Ellis County

Phillips Petroleum Co. made location for No. 1 Heider, NE cor. SW, Section 8-12-17w.

Elk County

National Union Oil Co.'s No. 8 Eyman, SE cor. NE, Section 9-31-10, has been completed for 100 bbls. in sand at 1,988-2,019 feet. Sonner Gas Co.'s No. 1 Moline Townsite, Block 44, Lots 3 and 4, NW cor. SE SW, Section 10-31-10, made 75 bbls. from sand at 1,981-2,006 feet.

Greenwood County

Independent Oil & Gas Co. made location for No. 8 Shepherd, SE cor. SW, Section 2-22-10. Location was made for No. 9 Shepherd, NE cor. NW, Section 11-22-10. The Texas Company's No. 2 Edwards, NW cor. SE, Section 21-23-11, is a location. Mid-Continent Petroleum Corp. made location for No. 3 Geist, NW cor. SW, Section 13-24-12. Marshall and others' No. 9 Bonnett, SW cor. SE SW NW, Section 13-24-12, is rigging up. Superior Oil Corp. has the rig up for No. 5 Bonnett, NW cor. SW NE, Section 13-24-12. Mohawk Oil & Gas Co. made location for No. 1 Essick, NW cor. NE SW, Section 7-27-11.

Amerada Petroleum Corp.'s No. 5 Luthi, SE cor. NW SW, Section 29-22-13, made 125 bbls. from sand at 1,689-1,711 feet. York State Oil Co.'s No. 1 Rice, SW cor. SE NE, Section 21-23-11, is dry and abandoned at 1,946 feet. Sheedy and others' No. 1 Sharp, NE cor. NW NE, Section 5-24-13, was completed for 1,000,000 feet of gas in sand at 521 feet.

Harvey County

Hartman & Skaer made location for No. 1 Seaman, NW cor. NE SE, Section 26-24-1.

McPherson County

Helmerick & Payne made location for No. 1 Resser, NE cor. SE SW, Section 23-21-2w.

Rooks County

Kruger and others made location for No. 1 Roffman, SE cor. NW SW, Section 14-9-16w.

Russell County

Midwest Exploration Co. made location for No. 6 Bundgardt, NW cor. Section 31-12-15w. The rig is on the location for No. 22 Baxter, NW cor. SE SW, Section 33-13-15w.

Rush County

Wilcox Oil & Gas Co. made location for No. 1 Schwartzkopf, NW cor. SW, Section 27-17-17w.

Sedgwick County

Marshall and others made location for No. 1 Dix, C SW, Section 4-25-2w. Derby Oil Co. has the rig up for No. 1 Ramsey, SW cor. NW SW, Section 31-25-1. Brandenberry & Hinkle's rig is up for No. 1 Whiting, NW cor. SW, Section 31-25-1. Shawver & Dickey made location for No. 1 Kuhn, SW cor. NW SW, Section 31-25-1. Washabaugh and others' No. 1 Harrison, NW cor. NE NE, Section 3-26-2w, is a rig. Davis and Skelly Oil Co. have the rig on the ground for No. 3 Wilson, NE cor. SE NE NE, Section 1-26-1w. Location has been made for No. 4 Wilson, NE cor. SE NE NE, Section 1-26-1w, Valley Center Pool. No. 5 Wilson, NE cor. SE NE, Section 1-26-1w, is also a location.

Phillips Petroleum Co. has the rig up for No. 2 Difford, SE cor. NE NE NE, Section 1-26-1w. The rig is also up for No. 3 Difford, NE cor. Section 1-26-1w. G. L. Ramsey and others moved the rig out for No. 1 Evans, SW cor. Section 2-26-1w. Davis and Skelly Oil Co.'s No. 2 Wilson, SW cor. NE NE, Section 6-26-1w, is a rig under construction. Vickers Petroleum Co. made location for No. 2 Nissen, NW cor. SW NE SW, Section 6-26-1. Pyle & Sutter's No. 2 Caldwell, NE cor. NW SE SW, Section 6-26-1, is a rig under construction. Bu-Vi-Bar Petroleum Co. and others built the rig for No. 2 Goodrich, SW cor. NW SW, Section 6-26-1. No. 1 Goodrich, SW cor. NW SW SE, Section 6-26-1, is also a rig. Montour Oil Co. made location for No. 2 Lavender, SE cor. SW, Section 6-26-1. The rig is up for No. 1 Lavender, CWL E half SE SW, Section 6-26-1.

Woodson County

Fields & Cross' No. 2 Eades, NE cor. NW SE, Section 24-25-13, has been abandoned at 1,568 feet.

FIELD MEN OF BURBANK DISCUSS REPRESSURING

Field men of seven of the major oil companies operating in the Burbank Field, Oklahoma, met at the field office of the Vintage Camp of the Phillips Petroleum Co. in the Burbank Field, January 23 to organize and start a series of informal meetings to discuss repressuring and related production problems in that district. L. B. Holland of the Phillips Petroleum Co. acted as temporary chairman. Fred Beiser, Burbank field engineer for the Sinclair Oil & Gas Co. was elected chairman of the group for 1929 and G. M. Cook, natural gasoline plant superintendent for the Mid-Kansas Oil & Gas Co., was elected vice chairman and secretary. It was decided to hold the meetings once each month, the next meeting being scheduled for February 19. All field men interested in repressuring are invited to attend the meetings.

The matter of making these group meetings the nucleus for a Burbank Field chapter of the A.P.I. was also brought up for consideration and was regarded favorably by those present. In view of the keen interest and the probably increasing attendance at future meetings, plans were made to find a larger assembly room for the next meeting.

The subjects discussed at the meeting of January 23 were brief outlines of the repressuring work in the Burbank Field thus far done by the different companies, casing, liner and packer practices in pressure wells, results thus far obtained by repressuring in Burbank, and possible methods of improving present practice. It was agreed that successful repressuring operations in the Burbank Field call for as much co-operation between the field men of the different companies as possible. The frankness with which they discussed their problems warrants the statement that this organization for the discussion and exchange of information upon field problems common to all of the companies represented is a progressive step full of promising possibilities. Field men in other districts might well follow Burbank's example.

Those who attended the meeting were: C. A. Taylor, Webb City, Okla., J. C. Delaughter, Denoya, Okla.; J. W. Stoker, Shidler, Okla.; L. B. Holland, Bartlesville, Okla.; M. L. Atkinson, Shidler, Okla.; H. Trax, Kaw City, Okla.; R. M. Carr, Tulsa, Okla.; Carl Hedmon, Bartlesville, Okla.; G. M. Cook, Cooper, Okla.; J. T. Baker, Cooper, Okla.; Earl Allen, Burbank, Okla.; S. J. Patrick, Burbank, Okla.; B. C. Dale, Kaw City, Okla.; C. H. Custer, Bartlesville, Okla., and R. Van A. Mills, Tulsa, Okla.

RIO GRANDE CONNECTING REFINERY WITH TERMINAL

LOS ANGELES, Calif., Jan. 26.—The Rio Grande Oil Co. has a $2,000,000 expansion program under way covering the cost of refinery enlargement and terminal and pipe line facilities. The expansion is made necessary due to the large crude oil production which the Rio Grande company and the Barnsdall Oil Co. have in the new Elwood Field.

The crude oil will be shipped by tanker from the Elwood pier to the new terminal which the Rio Grande company is building at Long Beach. The terminal will cost $750,000. Three pipe lines will connect this terminal with the company's refinery at Vinvale. An 8-inch line will transport the crude oil to the refinery. A 6-inch will be built to move fuel oil from the refinery to the terminal and a 4-inch line will be used for gasoline. The capacity of the refinery is to be doubled.

WILDCAT OPERATIONS IN TEXAS PANHANDLE

(Continued from Page 63)

GRAY COUNTY

Anderson et als' No. 1 Heitholt, C NE SW, Sec. 152, Blk. 3, I.&G.N. Sur. ..... Rig.

B. S. Arnold's No. 1 J. E. Mingale, C E 160 ac., Sec. 212, Blk. B-3, H.&G.N. Sur. ..... S.D. 1,412 ft.

Arnold & Howell's No. 1 Turnex, C SW, Sec. 111, Blk. B-2 ..... S.D. 2,224 ft. for pipe.

Barnsdall Oil Corp.'s No. 1 M. B. Davis, NW cor. W½ SE, Sec. 9, Blk. 1, A.C.H.&B. Sur. ..... Rig.

Camel Oil Co.'s No. 1 Harrah-B, 330 ft. each way from NW cor. NE, Sec. 150, Blk. 3, I.&G.N. Sur. ..... Cellar.

Crabtree Drlg. Co.'s No. 1 B. F. Talley, SW NE, Sec. 114, Blk. M-2, B.S.&F. Sur. ..... S.O. 2,400 ft.; S.D. 2,735 ft.

Constantine et al's No. 1 Dial, 330 ft. S and E of NW cor. W½ NW, Sec. 32, Blk. 25, H. & G. N. Sur. ..... Drlg. 260 ft.

Danciger et al's No. 1 Shaw, 1,000 ft. N and 330 ft. W SE cor. SW, Sec. 5, Blk. 1, A.C.H.&B. Sur. ..... 35,000,000 ft. gas 2,290 ft.; show oil 2,610-13 ft.; run insert liner 2,645 ft.

Danciger et al's No. 1 J. E. Williams, 330 ft. each way from NE cor. NW SW, Sec. 6, Blk. 1, A.C.H.&B. Sur. .. Drlg. 640 ft.

Danciger et al's No. 1 Sheridan, SE cor. Sec. 184, Blk. B-2, H.&G.N.R.R. Sur. ..... Location.

Delmar Oil Co.'s No. 1 F. Foster, NW cor. SW, Sec. 55, Blk. B-2, H.&G.N. Sur. ..... S.O.; 4,000,000 ft. gas 2,835-97 ft.; T.D. 2,757 ft.; to plug back to 2,950 ft. and shoot.

Delmar Oil Co.'s No. 1 Chapman, 330 ft. each way from SE cor. NW, Sec. 10, Blk. 26, H.&G.N. Sur. ..... Set 8-in. 2,200 ft.

Empire G. & F. Co.'s No. 1 A. R. Clay, NE cor. Sec. 185, Blk. B-2 ..... Drlg. 1,347 ft.

Eslick & McKinney's No. 1 Mrs. Hopkins, 330 ft. from NE, E½ NE, Sec. 84, Blk. B-2, H.&G.N. Sur. ..... Fishing for bit 2,635 ft.

Sines & Reiger's, formerly Eslick et al's No. 1 Mrs. J. A. Hopkins, NW cor. W 80 ac. of SW, Sec. 84, Blk. B-2, H.&T.C. Sur. ..... Pull 6-in. csg. 3,206 ft.

Gulf Prod. Co.'s No. 4 Holmes-A, 990 ft. N and 330 ft. E of SW cor. W½ SE, Sec. 87, Blk. 3, I.&G.N. R.R. Sur. ..... Drlg. 2,980 ft.

Gardner, Collins et al's No. 1 Saunders, 330 ft. each way from NE cor. of S 49 ac. of W 100 ac., Sec. 3, B.&B. Sur. ..... 10,100,000 ft. gas 2,526-46 ft.; drlg. 2,625 ft.

Magnolia Pet. Co.'s No. 3 W. Harrah, 330 ft. from NE cor. NW, Sec. 150, Blk. 3, I.&G.N. Sur. ..... Drlg. 2,490 ft.

Magnolia Pet. Co.'s No. 1 Gething, 530 ft. each way from SE SW, Sec. 14, Blk. A-9, H.&G.N. Sur. ..... Drlg. 1,680 ft.

Malone et al's No. 1 Taylor, 990 ft. S and E of NW cor. NW Sec. 22, Blk. B-2, H.&G.N. Sur. ..... Drlg. 1,580 ft.

Marland Prod. Co.'s No. 1 Brown-Finley, 330 ft. S and W of NE cor. Sec. 32, Blk. B-2, H.&G.N.R.R. Sur. .... Drlg. 1,540 ft.

McElroy Oil Co.'s No. 2 Bruce Bull, 165 ft. from N line and 240 ft. from W line of E 87.3 ac. of Sec. 3, Blk. B-2, H.&G.N.R.R. Sur. ..... T.D. 2,799 ft., swb. 20 bbls. at 2,790 ft. to shoot.

McLain Oil Co.'s No. 1 Back, 1,000 ft. from W. line and 330 ft. from N line NW, Sec. 24, Blk. 25, H.&G.N. Sur. ..... Spud. and S.D.

Midwest O. & G. Co.'s No. 1 Bower-B, 1,650 ft. from E and 330 ft. from N lines, Sec. 93, Blk. B-2, H.&G. N.R.R. Sur. ..... Rig.

Nabob Oil Co.'s No. 2 Morse, 660 ft. from W line and 330 ft. from S line SW, Sec. 67, Blk. 25, H.&G.N. R.R. Sur. ..... Cellar.

Operators Oil Co.'s No. 2 Jackson, 330 ft. S and 990 ft. E of NW cor. N½ of NE Sec. 88, Blk. B-2, H.&G.N. R.R. Sur. ..... Location.

Parton & Holt's No. 1 Gething, 330 ft. each way from SE cor. NE, Sec. 14, Blk. A-9 ..... S.D. 2,808 ft.

Phillips Pet. Co.'s No. 4 Johns, 330 ft. each way from NE cor. SE SW, Sec. 87, Blk. 3, I.&G.N. Sur. ..... Fishing 3,085 ft.

Phillips Pet. Co.'s No. 5 Johns, 330 ft. N and 990 ft. E of SW cor. SW, Sec. 87, Blk. 3, I.&G.N. Sur. ..... Rig.

Phillips Pet. Co.'s No. 1 Rob Olsen, NW cor. S½ Sec. 64, Blk. B-2 ..... T.D. 3,239 ft.; plugged back to 3,-230 ft.; shot with 440 qts. at 3,-119-3,222 ft.; 600 ft. oil and 60 ft. wtr. in hole; drlg. 3,980 ft.

Pure Oil Co.'s No. 8 Davis, 330 ft. from NW NE, Sec. 86, Blk. 3, I.&G.N.R.R. Sur. ..... Show oil lime 3,036 ft.; T.D. 3,254 ft. swbd. 125 bbls.; T.D. 3,281 ft.

Prairie O. & G. Co.'s No. 2 Reynolds, 330 ft. each way from NW cor. SE, Sec. 61, Blk. 3, I.&G.N. Sur. ..... Bailing 3,068 ft.

Purple Sage Oil Co.'s No. 2 E. B. Johnson ..... 2,000,000 ft. gas; 200 ft. oil 2,870 ft.; shot with 510 qts. 2,775-2,-872 ft.; 400 ft. oil; C.O. 2,875 ft.

Republic Prod. Co.'s No. 1 G. H. Saunders, 330 ft. each way from SW cor. E½ NW cor. Sec. 4, Blk. 1, A.C.H.&B. Sur. ..... Fish. 2,625 ft.

Schwald et al's No. 1 fee, 330 ft. each way from NE cor. E½ SW, Sec. 1, Blk. 1, A.C.H.&B. Sur. ..... Cmtd. 6-in. 2,380 ft.

Skelly Oil Co.'s No. 1 Saunders, 330 ft. from E line, 990 ft. from S line, SW, Sec. 4, Blk. 1, A.C.H.&B. Sur. .... Fish. 2,475 ft.

Skelly Oil Co.'s No. 3 Saunders, 330 ft. from N line and 990 ft. from W line, SW cor. Sec. 4, Blk. 1, A.C.H.&B. Sur. ..... Drlg. 2,720 ft.

Skelly Oil Co.'s No. 4 Saunders, 330 ft. from N line and 990 ft. from E line, SW cor. Sec. 4, Blk. 1, A.C.H.&B. Sur. ..... Swb. 60 bbls. 2,750-60, 2,785-90 and 2,795-97 ft.; T.D. 2,812 ft., to shoot.

St. Clair Oil Co.'s No. 1 Rowe, Sec. 32, Blk. R ..... Drlg. 2,560 ft.

St. Clair Oil Co.'s No. 1 L. S. Stockton, SE cor. Sec. 35, W. R. Lee Sur. ..... Spudded and S.D.

Southern Pet. Exp. Co.'s No. 2 McConnell, 990 ft. from W line and 330 ft. from S line NW, Sec. 174, Blk. 3, I.&G.N. Sur. ..... Cemented 8-in. csg. 2,388 ft.

The Texas Co.'s No. 5 A. Chapman, 1,138 ft. from W and 330 ft. from S lines, SE, Sec. 51, Blk. 25, H. &G.N. Sur. ..... Drlg. 345 ft.

The Texas Co.'s No. 5 Davis, 330 ft. S and W of NE cor. NW, Sec. 86, Blk. 3, I.&G.N. Sur. ..... Drlg. 3,100 ft.

The Texas Co.'s No. 8 Saunders, 895 ft. N and 2,060 ft. E of SW cor. Sec. 3, B.&B. Sur. ..... Swb. 130 bbls. 2,740-48 ft.; T.D. 2,755 ft., to shoot.

The Texas Co.'s No. 9 Saunders, 330 ft. S and 3,016 ft. E of NW cor. Sec. 1, Eustis Sur. ..... Set 6-in. 2,637 ft.

Travis et al's No. 1 J. S. Morse, SE NW SW, Sec. 68, Blk. 25, H.&G.N. Sur. ..... 30,000,000 ft. gas 2,592-2,610 ft.; light spray oil 2,740-45 ft.; to deepen. wtr. and putting on gas lift.

Wilcox-Pampa Oil Co.'s No. 31 Worley Reynolds, 330 ft. N and E SW cor. SE SW, Sec. 61, Blk. 3, I.&G.N. .. S.D. 2,330 ft.

HOCKLEY COUNTY

World Oil Co.'s No. 1 Ellwood, 320 ft. from N and W lines, League 7, Wilbarger County school lands; elevation 3,363 ft.; contract depth 5,000 ft. ..... S.D. 1,455 ft.

HARTLEY COUNTY

Amarillo Oil Co.'s No. 9 Lee Bivins "A," C NW, Sec. 6, Blk. 21 ..... 15,000,000 ft. gas 3,300-35 ft.; T.D. 3,601 ft.; deepen.

Canadian River Gas Co.'s No. 10 Burns-A, 660 ft. N. and 660 ft. E, Sec. 18, Blk. 2, G.&M. Sur. ..... Rig.

HUTCHINSON COUNTY

Antelope Creek Oil Co.'s No. 3 Sanford, 330 ft. from N line and 330 ft. from W line of E½ S 160 ac. of Sec. 82, Blk. 46, H.&T.C. Sur. ..... Drlg. 2,670 ft.

Dunnigan et al's No. 1 C. W. Hugenbyhl, 330 ft. from S line and 330 ft. from E line, N½, Sec. 4, Blk. T. W.N.G.R.R. Sur. ..... Drlg. 1,650 ft.

Oil Operators Trust Co. and Marland's No. 2 J. M. Stanford B, Sec. 82, Blk. 46, H.&T.C. Sur. ..... S.D. 3,039 ft.

Phillips Pet. Co.'s No. 2 Jasper, 980 ft. from S line and 660 ft. from E line SE, Sec. 23, Blk. M-23, T.C. R.R. Sur. ..... Rig.

Phillips Pet. Co.'s No. 4 Johnson Bros.-Florence, 330 ft. N and E of SW cor. E½, Mary Whitely Sur.....Drlg. 900 ft.
Phillips Pet. Co.'s No. 3 Johnson-Pulaski, 330 ft. N and W of SE cor. W½, Mary Whitely Sur. .....Drlg. 2,650 ft.
Phillips Pet. Co.'s No. 5 Johnson-Barnum, 990 ft. N and 330 ft. W SE cor. E 80 ac. of S 160 ac. of N 400 ac., Sec. 64, Blk. 46, H.&T.C.R.R. Sur. .....Drlg. 490 ft.
Phillips Pet. Co.'s No. 3 Sanford-Garland, 330 ft. N and E of SW cor. Sec. 77, Blk. 46, H.&T.C. Sur. .....Rig.
Phillips Pet. Co.'s No. 15 Whittenburg, Sec. 63, Blk. 46, H.&T.C. Sur. .....Drlg. 460 ft.
Phillips Pet. Co.'s No. 16 Whittenburg, Sec. 63, Blk. 46, H.&T.C. Sur. .....Spud.
Timms et al's No. 1 Moore, 330 ft. N and E of SW cor. S 40 ac. of NW, Sec. 21, Blk. M-21, T.C.R.R. Sur..Rig.
Wendell et al's No. 1 Johnson Bros., Sec. 1, Blk. X03....Set 10-in. csg. 2,035 ft.; S.D.

KING COUNTY

The Texas Co.'s No. 1 J. H. Johnson .....S.D. 4,300 ft.
Huff Oil Co.'s No. 1 Martin, 1,320 ft. from N line and 1,320 ft. from E line Sec. 171, Blk. F, H.&T.C. Sur....Rigging.

LAMB COUNTY

Dan Freel et al's No. 1 Ellwood, CWL Sec. 9, Blk. T, T. A. Thompson Sur. .....Spudded and S.D.

LIPSCOMB COUNTY

Brown et al's No. 1 Box T Ranch, SW NE Sec. 612, H.&T.C. Sur. .....Drlg. 2,996 ft.
Ruby Oil Co.'s No. 1 C. W. Jones, NE SW, Sec. 100, H.&T.C. Sur. .....S.D. 4,433 ft. for 5-in. csg.

LUBBOCK COUNTY

Center Oil Co.'s No. 1 Bowles ranch .....Small show oil 1,133-40 ft.; sand; S.D. 4,000 ft.

MOORE COUNTY

Barnsdall Oil Corp.'s No. 1 L. R. Hagy, NW cor. of Thomas Ross Sur. .....20,00,0000 ft. gas 3,205 ft.; T.D. 3,234 ft.; 900 ft. oil 3,226-34 ft.; swbd. twice in one day and made 52 bbls.; swbng. 15 bbls.; T.D. 3,275 ft., shot with 10 qts. 3,256-64 ft., no increase.
Canadian Gas Co.'s No. 1 Kilgore-A, 2,716 ft. S and 2,695 ft. W of NE cor. Sec. 1, Eustis Sur. .....Drlg. 560 ft.
Devonian Oil Co.'s No. 1 J. T. Sneed, Jr., 2,235 ft. from E and 330 ft. from S lines, S 160 ac., N 320 ac. of Matilda Robinson Sur. .....Fish. 2,980 ft.
Dixie Creek Oil Co.'s No. 1-A Sneed, Jr., 330 ft. N and W of SE cor. E½, Sec. 65, Blk. 3, G.M. Sur. .....S.D. 3,247 ft., drlg. 3,310 ft.
Dixie Creek Oil Co.'s No. 4-A Sneed, Jr., 330 ft. S and W of NE cor. E½, Sec. 65, Blk. 3 .....10,000,000 ft. gas 2,835-55 ft.; 50 ft. oil 3,304-05 ft.; H.F.W. 3,-354 ft.; P.B. to 3,336 ft.
Fritch O. & G. Co.'s No. 1 Lee Burns, C NE 40 ac. of N 160 ac., Sec. 4, Geo. Mahan Sur. .....Spudded and S.D.
Phillips Pet. Co.'s No. 1 Burnett, 330 ft. each way from NE cor. NE, Sec. 192, Blk. 3-T, T.&N.O. Sur....Drlg. 2,100 ft.
Phillips Pet. Co.'s No. 4 Sneed, 1,600 ft. S and 990 ft. W of NW cor. J. W. Proctor Sur.; located in M. Robinson Sur. .....Location.

MOTLEY COUNTY

Explin. Co.'s No. 1 Tillson .....Drlg. 1,550 ft.
Explin. Co.'s No. 2 Matador Land & Cattle Co., C SW, Sec. 37, John Gibson Sur. .....U.R. 6-in. csg. 4,700 ft.

ROBERTS COUNTY

Big Bend Oil Co.'s No. 1 Ledrick, Sec. 7, Blk. 5-A .....Formerly abd. at 5,240 ft.; small show 36 gravity oil 5,288-91 ft.; show oil brown sand 5,710-12 ft.; set whipstock to drill by tools 5,827 ft.

WHEELER COUNTY

Angus et al's No. 2 Morgan, C E½ NW NE, Sec. 93, Blk. 17, H.&G.N. Sur. .....S.D. 1,175 ft. for pipe.
Arnold Oil Co. et al's No. 1 Ritchey, 420 ft. from E and 460 ft. from S lines of NW cor. Sec. 5, Blk. 24, H.&G.N. Sur. .....Drlg. 725 ft.
Byrens et al's No. 1 Johnson, SW cor. NE, Sec. 88, Blk. A-5, H.&G.N. Sur. .....S.D. 2,800 ft.
Edwards et al's No. 2 Trostle, C NW of NW Sec. 130, Blk. 23, H.&G.N. Sur. .....Location.
Fain McGaha and Humble's No. 1 Noel, 330 ft. each way from NE cor. S½ SE, Sec. 54, Blk. 24, H.& G.N. Sur. .....Fishing 210 ft.
Gibson Oil Co.'s No. 6 Bentley, 330 ft. S and E of NW cor. SE of SE Sec. 42, Blk. 24, H.&G.N.R.R. Sur....Location.
Hartell et al's No. 1 Burchman, C NW SE, Sec. 91, Blk. 17, H.&G.N. Sur. .....Fishing 1,808 ft.
Johnson & Co.'s No. 1 Purcell, 430 ft. from N line and 570 ft. from W line NE, Sec. 50, Blk. 17, H.&G.N. Sur..Drlg. 922 ft.
Lone Star Co.'s No. 1 Hicks, C SW NE, Sec. 52, Blk. 17, H.&G.N. Sur. .....Rig.
Lone Star Gas Co.'s No. 3 Jones, C NW NE, Sec. 1, Blk. 25, H.&G.N. Sur. .....Drlg. 1,120 ft.
Lone Star Co.'s No. 1 Shelton, C NE SE, Sec. 22, Blk. 24, H.&G.N. Sur. .....Drlg. 1,482 ft.
Mudge Oil Co.'s No. 1 Hicks, C SW of SW Sec. 52, Blk. 17, H.&G.N.R.R. Sur. .....Location.
L. W. Rook's No. 1 M Nelson, C SW NE, Sec. 5, Blk. 24, H.&G.N. Sur. .....Fishing 1,980 ft.
The Texas Co.'s No. 1 Gordon, 330 ft. N and 405 ft .W of SE cor. of NW Sec. 91, Blk. 17, H.&G.N.R.R. Sur..Location.
J. D. Whittington et al's No. 3 Williams-Laycock, 330 ft. N and E of SW cor. SW, Sec. 9, Blk. 27, H. &G.N.R.R. Sur. .....Fishing 1,830 ft.
L. W. Rook's No. 2 A. Smock, C SW SE, Sec. 5, Blk. 24, H.&G.N. Sur. .....Rig.
Vaughn et al's No. 1 Woodley, C NE of NE Sec. 21, Blk. 24, H.&G.N. Sur. .....Location.
Wisch Kamper's No. 1 Adamson, C NE SE, Sec. 50, Blk. 17, H.&G.N.R.R. Sur. .....Spud. & S.D.
Wisch Kamper's No. 1 Parsons, C NW NW, Sec. 53, Blk. 23, H.&G.N. Sur. .....C.O. 1,950 ft.
Wisch Kamper's No. 2 Wisch-Kamper, 175 ft. N and 164 ft. E of SW cor. NE SW, Sec. 86, Blk. 23, H. &G.N. Sur. .....Drlg. 1,295 ft.
Upham Gas Co.'s No. 1 Raybo, C S½ NW NW, Sec. 105, Blk. 23, H.&G.N. Sur. .....Rig.

WILDCAT OPERATIONS IN WEST TEXAS

(Continued from Page 64)

CULBERSON COUNTY

Deep Rock Oil Co.'s No. 2 Seay, 200 ft. N and 250 ft. E of CSL Sec. 20, Blk. 59, T.&P. Sur. .....Set 10-in. casing 1,137 ft.; total depth 1,825 ft.
Hickey & Stiver's No. 1 C. O. Finley, 660 ft. N and 1,980 ft. W Sec. 20, Blk. 82 .....Hole full water; small oil show 1,331 ft.; pipe set 1,418 ft.; total depth 1,660 ft; underreaming at 1,590 ft.; total depth 1,680 ft.
W. S. Hillyer's No. 1 McGregor, C NW Sec. 14, Blk. 81 ..Shut down 530 ft.
Scott & Dittman's No. 1 Miller, 1,160 ft. N and 2,480 ft. E Sec. 1, Blk. 97, Public School Land .....Rainbow 1,056 ft.; 300 ft. sulphur water 1,725 ft.; shut down for casing 1,767 ft.

DAWSON COUNTY

Magnolia Petroleum Co.'s No. 1 W. A. Jetter, C Sec. 1, Blk. 34, Twp. 4n .....Top salt 1,650 ft.; top lime 3,560 ft.; set 10-in. casing 1,815 ft.; oil show 3,856 ft.; drlg. 4,075 ft.; 2,500 ft. water 4,000 ft.

EL PASO COUNTY

Sillix et al's No. 1 W. D. Malone, Sec. 46, James M. Day Sur. .....Set 12½-in. casing 1,010 ft.; shut down 1,610 ft.

FISHER COUNTY

Bickerstaff et al's No. 1 McWhirter, 2,640 ft. E and 150 ft. N of SW cor. of Sec. 295, Blk. 2, H.&T.C. Sur. ....Shut down 1,820 ft.

Cranfill & Reynolds' No. 1 Brown, 330 ft. S and E of NW cor. Sec. 4, W. E. Richardson Sur. .....Drlg. 1,720 ft.
Cranfill & Reynolds' No. 2 Willingham, 1,980 ft. S and 2,310 ft. W of NE cor. Sec. 207, B.B.B.&C.R.R. Sur...Drlg. 125 ft.
Cranfill & Reynolds' No. 1 Fleming, 1,980 ft. S and 2,310 ft. E of NW cor. Sec. 207, B.B.B.&C.R.R. .....Rig.
Dunnegan Bros.' No. 1 T. Henry, 330 ft. N and E of SE cor. Sec. 21, George W. Burdett Sur. No. 322, but in Sec. 4, Robert Hibbitt Sur. No. 331 .....Shut down 1,475 ft.
Hucony Gas Co.'s No. 1 D. F. Maberry, 1,078 ft. S and 188 ft. W of NE cor. Elijah Bell Sur. No. 327 .....Hole full salt water 2,735 ft.; top lime 2,960 ft.; pay 2,961-3,055 ft.; show oil and water; drlg.
Landreth Prod. Corp.'s No. 1 Cooper, 440 ft. SE of NE cor. NW Sec. 115, Blk. 1, H.&T.C. Sur. .....Drlg. 150 ft.
Texas-Phillips' No. 1 Hall, 330 ft. N and W of SE cor. Sec. 6, Blk. 20 .....Location.
Thompson et al's No. 1 Newman, 1,320 ft. N and 660 ft. W of SE cor. of SW Sec. 44, Blk. 1, H.&T.B. Sur. .....Drlg. 2,670 ft.

GAINES COUNTY

Pure Oil Co.'s No. 1 A. A. Williamson, 1,650 ft. S and 330 ft. W of NE cor. Sec. 110, Blk. H. D.&W.R.R. ...Top salt 2,333 ft.; drlg. 2,615 ft.

GARZA COUNTY

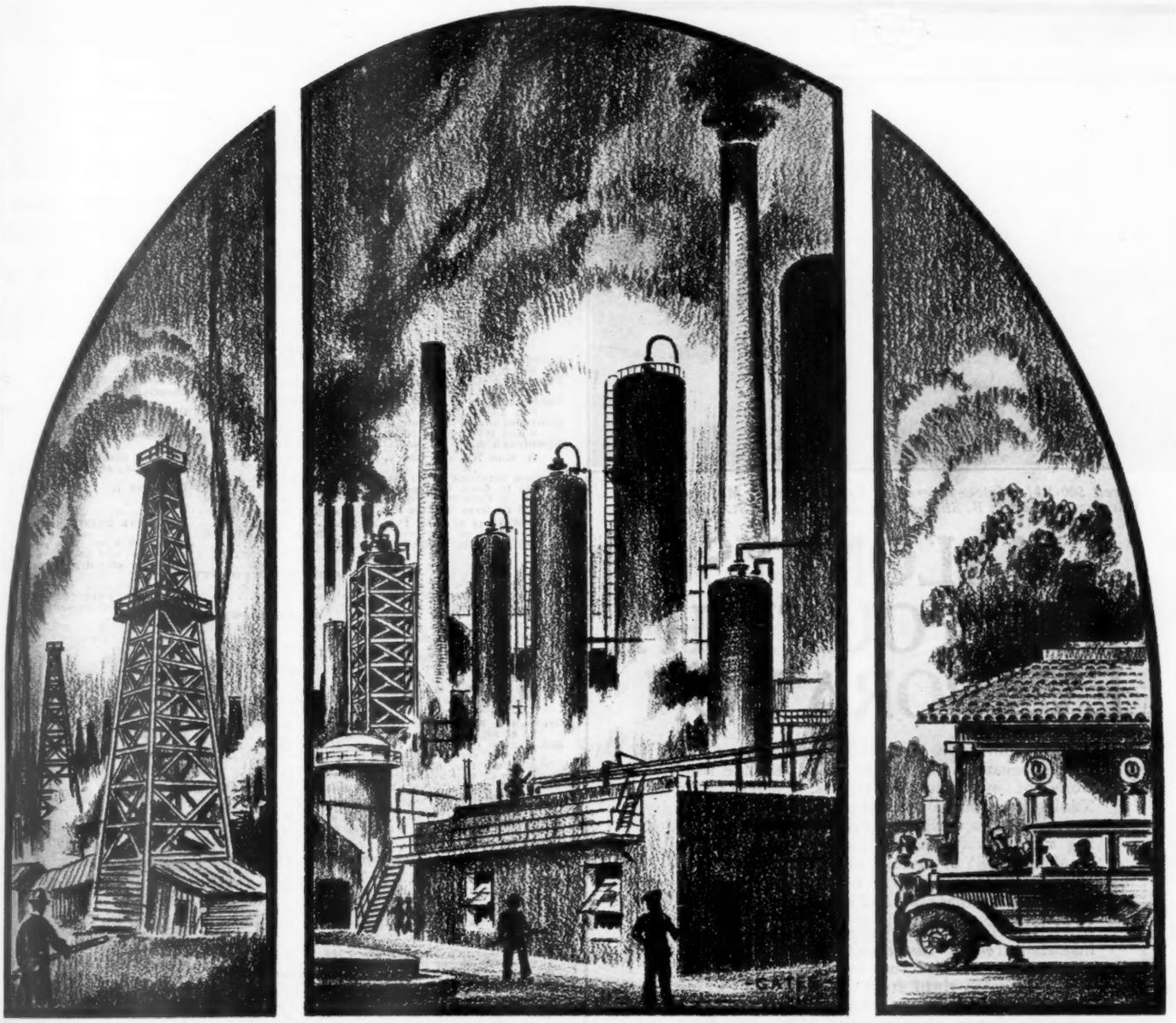
Emerald Oil Co.'s No. 4 J. M. Boren, 330 ft. S and W NE cor. Sec. 136, Blk. 5, H.&G.N. Sur. .....Spudding.

GLASSCOCK COUNTY

Chas. Daniel et al's No. 1 Meek, 2,310 ft. W and 1,600 ft. N of SE cor. Sec. 7, Blk. 34, Twp. 3s, T.&P. Sur. ..Spudded and shut down.
Gibson & Johnson's No. 1 Mann, C NW Sec. 6, Blk. 33, T.&P. Sur. .....Drlg. 1,575 ft.
R. R. Penn's No. 1 Hughes-Johnson, C NW Sec. 45, Blk. 30, W.&N.W. Sur. .....Drlg. 900 ft.
Marland Prod. Co. et al's No. 7-A Settles, 2,310 ft. S and W of NE cor. Sec. 158, Blk. 29, W.&N.W. Sur. ..Location.
Meriweather Oil Co.'s No. 2 McDowell, 1,492 ft. N and 150 ft. E of SE Sec. 35, Blk. 34, Twp. 2s, T.&P. Sur. ..Shut down 2,690 ft.; hole full water 2,665 ft.
Sprague Oil Co.'s No. 4 Roberts, 1,650 ft. S and 330 ft. E of NW cor. Sec. 156, Blk. 29 .....Shut down 2,940 ft.
World Oil Co.'s No. 1-C McDowell, 1,650 ft. S and 2,310 ft. W of NE cor. Sec. 21, Blk. 34 .....Drlg. 400 ft.
White Eagle Oil & Ref. Co.'s No. 1 Dunbar, C of NW Sec. 46, Blk. 34, Twp. 4s, T.&P.R.R. Sur. .....Shut down 2,210 ft.

HOWARD COUNTY

Amerada Pet. Corp. and Rycade Oil Corp.'s No. 2 Dora Roberts, 990 ft. S and 2,240 ft. W of NE cor. Sec. 137, Blk. 29 .....Hole full oil 2,505-50 ft.; to pump.
Amerada Pet. Corp. and Rycade Oil Corp.'s No. 5 Dora Roberts, 330 ft. N and 2,310 ft. W of SE cor. Sec. 128, Blk. 29 .....Top pay 2,968-80 ft.; 1,800 ft. oil.
Amerada Pet. Corp. and Rycade Oil Corp.'s No. 6 Dora Roberts, 330 ft. N and 990 ft. W of SE cor. Sec. 128, Blk. 29, W.&N.W. Sur. .....Set 6-in. casing 2,950 ft.; top pay 2,954 ft.; total depth 2,969 ft.; swabbed 60 bbls. hr.
American Maracaibo Co.'s No. 4 Settles-C, 1,373 ft. S and 3,023 ft. E of NW cor. Sec. 6, Blk. 32, Twp. 2s...Location.
Bristow & Merrick's No. 10 Hooks, 660 ft. S and 2,440 ft. E of NW cor. Sec. 140, Blk. 29, W.&N.W.R.R. Sur...Location.
California Co.'s No. 1 Settles, 2,310 ft. N and W of SE Sec. 158, Blk. 28, W.&N.W. Sur. .....Drlg. 777 ft.
Cosden & Co.'s No. 2 Dora Roberts-D, 1,650 ft. S and 990 ft. W of NE cor. Sec. 167, Blk. 29, W.&N.W. Sur...Drlg. 3,023 ft.
Cosden & Co.'s No. 2 Roberts-C, 1,540 ft. N and 990 ft. E of SE cor. Sec. 128, Blk. 29, W.&N.W.R.R. Sur. ...Drlg. 715 ft.
Coyle & Concord Oil Co.'s No. 6 D. Roberts, 1,650 ft. S and 150 ft. W of NE cor. Sec. 156, Blk. 29, W.&N.W. R.R. Sur. .....Location.
Empire Gas & Fuel Co.'s No. 2 Clay, 785 ft. N and 1,570 ft. W of SE cor. Sec. 127, Blk. 29, W.&N.W.R.R. Sur...Drlg. 780 ft.
F. H. E. Oil Co. et al's No. 1-B Dora Roberts, 330 ft. S and E of NW Sec. 127, Blk. 29 .....Drlg. by tools 2,600 ft.
F. H. E. Oil Co.'s No. 11-B Dora Roberts, 1,700 ft. S and 2,310 ft. E of NW cor. Sec. 137, Blk. 29, W.&N.W. Sur. .....Shut down 250 ft.
F. H. E. Oil Co.'s No. 5-D Dora Roberts, 2,310 ft. S and 1,650 ft. E of NW cor. Sec. 136, Blk. 29 .....Set 6-in. casing 2,930 ft.; shut down.
Green Oil & Ref. Co.'s No. 6 H. R. Clay, 1,315 ft. N and 1,070 ft. W of SE cor. Sec. 127, Blk. 29, W.&N.W.R.R. Sur. .....Set 6⅝-in. casing 1,585 ft.
Green Oil Co. et al's No. 1 J. W. Furrh, C SW cor. Sec. 11, Blk. 31 .....Top lime 2,100 ft.; set 6-in. casing 2,865 ft.; shut down 3,502 ft.
Green et al's No. 1 Slaughter, C SW Sec. 32, Blk. 31, Twp. 3n, T.&P.R.R. Sur. .....Bldg. rig.
Group No. 1 & Marland Prod. Co.'s No. 5 Settles, 2,310 ft. S and 330 ft. E of NW cor. Sec. 133, Blk. 29, W.&N.W.R.R. Sur. .....Location.
Group No. 1 & Marland Prod. Co.'s No. 6 Settles, 2,310 ft. N, 330 ft. E of SW Sec. 133, Blk. 29 .....Location.
Gulf Prod. Co.'s No. 5 Clay, 990 ft. S and 330 ft. W of NE cor. of their 320-acre lease, Sec. 155, Blk. 29, W.&N.W. Sur. .....Location.
L. C. Harrison et al's No. 1 G. M. Podge Est., SE cor. Sec. 9, Blk. 30, Twp. 1s, T.&P. Sur. .....Hole full salt water 1,475-1,585 ft.; top lime 1,825 ft.; show oil 2,972-74 ft.; hole full fluid 3,257 ft.; total depth 3,357 ft. Plugged back to 3,000 ft. to shoot.
Henshaw Oil Corp.'s No. 2-A Settles, 1,884 ft. E and 330 ft. S of NW cor. Sec. 6, Blk. 32, Twp. 2s, T.&P. Sur...Pay 2,252-97 ft.; shot with 225 qts. at 2,267-97 ft.; 315 bbls.; drilled deeper to 2,317 ft.; testing.
Howard County Oil Corp.'s No. 1 Kloh, 990 ft. S and 1,170 ft. E of NW cor. Sec. 5, Blk. 32, Twp. 2s, T.&P.R.R. Sur. .....Junked hole 1,005 ft.; skidded derrick 160 ft. west and drlg. 1,265 ft.
Hyer & Yates' No. 3 Clay, 990 ft. S and 2,310 ft. W of NE cor. Sec. 165, Blk. 29, W.&N.W. Sur. .....Rig.
Laurel & Cosden's No. 8 Dora Roberts, 380 ft. W and 2,310 ft. N of SE cor. Sec. 136, Blk. 29 .....Cem. 6⅝-in. casing 2,938 ft.
Laurel & Cosden's No. 9 Roberts, 1,650 ft. N and 330 ft. W of SE cor. Sec. 136, Blk. 29, W.&N.W. Sur. .....Drlg. 2,250 ft.
Laurel Oil & Gas Co. and Cosden's No. 10 Dora Roberts, 990 ft. N and 330 ft. W of SE cor. Sec. 136, Blk. 29, W.&N.W. Sur. .....Rigging.
Magnolia Pet. Co.'s No. 13 Dora Roberts, 2,440 ft. N and 1,650 ft. E of SW cor. Sec. 136, Blk. 29, W.&N.W. Sur. .....Rigging up standard tools 2,927 ft.; shut down.
Magnolia Pet. Co.'s No. 16-D Dora Roberts, 990 ft. N and 1,650 ft. E of SW cor. Sec. 136, Blk. 29, W.&N.W. Sur. .....Testing 2,550-60 ft.
Marland Prod. Co.'s No. 2-C Chalk, 330 ft. S and 1,650 ft. W of NE cor. Sec. 140, Blk. 29 .....Drlg. 1,724 ft.
Marland Oil Co.'s No. 3-C Chalk, 660 ft. S and 2,440 ft. W of NE cor. Sec. 140, Blk. 29, W.&N.W. Sur. .....Drlg. 1,395 ft.
Marland Prod. Co.'s No. 3 Clay-F, 250 ft. S and 660 ft. W of NE cor. Sec. 138, Blk. 29, W.&N.W.R.R. Sur....Location.
Marland-Texon Prod. Co.'s No. 1 Eason, 2,638 ft. S and E of SW cor. Sec. 124, Blk. 29, W.&N.W. Sur. .....Swabbing 150 bbls. daily 2,200-60 ft.; to shoot or deepen.
Marland Oil Co.'s No. 8-A Settles, 2,310 ft. N and E of SW cor. Sec. 158, Blk. 29, W.&N.W. Sur. .....Location.
Midwest Exp. Co.'s No. 2 Clay-C, 330 ft. N and 1,650 ft. W of SE cor. Sec. 138, Blk. 29, W.&N.W.R.R. Sur. ...Location.
Moody Oil Corp.'s No. 13 D. Roberts, 2,310 ft. S and 2,250 ft. E of NW cor. Sec. 137, Blk. 29, W.&N.W.R.R. Sur...Location.
Merrick & Bristow's No. 8 Dora Roberts, 990 ft. N and 330 ft. E of SW cor. Sec. 137, Blk. 29, W.&N.W. Sur...Drlg. 1,384 ft.
Phillips Pet. Co.'s No. 1 J. Thomas, 330 ft. N and W of SE cor. Sec. 13, Blk. 33, Twp. 1n, T.&P. Sur. .....Topped lime 3,030 ft.; hole full sulphur water; drlg. 3,800 ft.
Pure Oil Co.'s No. 9 Chalk, 990 ft. N and W of SE cor. Sec. 125, Blk. 29, W.&N.W. Sur. .....Drlg. 1,616 ft.
Pure Oil Co.'s No. 9 Chalk, 330 ft. N and 990 ft. W of SE cor. Sec. 125, Blk. 29, W.&N.W.R.R. Sur. .....Location.
Schermerhorn Oil Co.'s No. 4 Roberts-A, 2,304 ft. S and



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Producers — *Refiners* — *Marketers*

TULSA, OKLAHOMA

Cable Address—"Indol"

Seven 500-Bbl. Maloneys erected by distributor, Maloney Sales Corporation, for T. B. Slick on the Linn Farm, at St. Louis, Okla.

MALONEYS HELP YOU FIGHT EVAPORATION

Evaporation costs operators immense sums of money because it steals the most valuable fractions of petroleum products. MALONEY Tanks resist the ravages of evaporation by being vapor-tight to a high degree. This money saving tightness is secured by features exclusive to MALONEYS, namely, our patented "crimp" which promotes close fit of parts, our special pliable rubber packing and our Gaso cement.

MALONEYS are unusually long lived because manufactured of rust-resisting Keystone Copper Steel. Other factors in MALONEY popularity include: rigid steel channels reinforcing all seams; bolts of 90,000 pounds tensile strength; large cleaning out plates set flush with bottoms; Maloney special pearl gray paint; the most efficient valves and thief hatches.

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Tulsa, Okla., U. S. A.

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Sizes: 12 to 10,000 Barrels — **Packed in Steel-Bound Crates for Export**

Howell Aluminum "4-in-1" Vacuum Pressure Valve and Thief-Hatch—The BEST and LATEST Deck Equipment—POSITIVE Safety.

MADE OF KEYSTONE COPPER STEEL — MALONEY PATENTED BOLTED COPPER-STEEL TANKS — MADE OF KEYSTONE COPPER STEEL

MALONEY TANKS

2,306 ft. W of NE cor. Sec. 137, Blk. 29, W.&N.W. R.R. Sur. ..... Location.

Shell Pet. Corp.'s No. 1 Settles, 990 ft. E and 330 ft. N of SW cor. Sec. 135, Blk. 29 ..... Cem. 8¼-in. casing 2,141 ft.

Sun Oil Co.'s No. 6 Settles, 915 ft. N and 330 ft. W of SE cor. Sec. 135, Blk. 29, W.&N.W. Sur. ..... Drlg. 1,400 ft.

Taylor-Link Oil Co.'s No. 2 Kloh-Rumsey, 1,884 ft. E and 150 ft. N of SW cor. Sec. 3, Blk. 32, Twp. 2s, T.&P.R.R. Sur. ..... Drlg. 1,200 ft.

Ward Oil Co.'s No. 2 Dora Roberts, 2,310 ft. N and E of SW cor. Sec. 137, Blk. 29 ..... Cem. 8¼-in. casing 1,947 ft.

Ward Oil Co.'s No. 5 Roberts, 1,650 ft. N and 330 ft. E of SW cor. Sec. 137, Blk. 29 ..... Shut down 1,928 ft.

Witherspoon et al's No. 1 Kloh-Rumsey, 2,970 ft. E and 150 ft. N of SW cor. Sec. 3, Blk. 32, Twp. 2s, T.&P.R.R. Sur. ..... Show oil 2,145 ft. and 2,216 ft.; total depth 2,323 ft.; to abandon.

HUDSPETH COUNTY

American Land Co.'s No. 1 Lockhart & Roseborough, C SE Sec. 5, School Blk. 21 ..... Total depth 360 ft.; rebuilding rig.

California Co.'s No. 1 University, 3,821 ft. N and 2,554 ft. E of SW cor. Sec. 19, Blk. E ..... Total depth 352 ft.; shut down; crooked hole; trying to straighten hole.

Western States Oil Co.'s No. 1 Moore, C SE Sec. 16, Blk. 71, Twp. 6, T.&P. Sur. ..... Straightreaming 2,700 ft.; total depth 2,740 ft.; fishing pipe.

Western States Oil Co.'s No. 1 Gardner & Moseley, NE NW Sec. 12, Blk. 13 ..... Hole full water 2,945 ft.; underreaming 8¾-inch casing at 2,6[illegible] ft.; trying to get water shut off; shut down 3,140 ft.; trying to pull casing.

IRION COUNTY

Fuhrman Pet. Co.'s No. 1 J. O. Suggs, Lease 1, C SE Sec. 3,024, Blk. 24, H.&T.C. Sur. ..... Rig.

Fuhrman Pet. Co.'s No. 1 J. D. Suggs, Lease 2, C SW Sec. 3,029, Blk. 24, H.&T.C. Sur. ..... Location.

Fuhrman Pet. Co.'s No. 1 J. D. Suggs, Lease 3, C SE Sec. 3,009, Blk. 24, H.&T.C. Sur. ..... Rig.

Kimbrough & Flinchbaugh's No. 1 Tankersley, 160 ft. S and 200 ft. W of NE cor. Sec. 712, Ford Willig Sur. ..... Spudding.

Kimbrough & Tuel's No. 1 J. M. Nutt, 1,920 ft. S, 200 ft. E of NW cor. Sec. 5, Gonzales Co. School Land ..... Set 6-in. casing 1,360 ft.; show oil and gas; shut down 1,400 ft.

Mertzon Interests' No. 1 Harlan Horney, 2,440 ft. N and 150 ft. from W lines of Sec. 2, Blk. 3, H.&T.C. Sur. ..... Drlg. 100 ft.

Signal Oil Co.'s No. 2 Suggs, 5,240 ft. from N line and 996 ft. from W line, Sec. 23, Blk. 27, H.&T.C. Sur. ..... Rig.

F. E. Webb et al's No. 1 J. M. Nutt ..... Shut down 2,510 ft.

Wesley West et al's No. 1 J. D. Suggs, SE NW SE Sec. 19, Blk. 7, H.&T.C. Sur. ..... Top pay 3,368 ft.; swabbed 11 bbls. oil and 40 bbls. water; 31 gravity oil; drlg. 5,160 ft.

JEFF DAVIS COUNTY

J. K. Hughes Dev. Co.'s No. 2 Means, 1,622 ft. N line, 600 ft. W line Sec. 345, H.&T.C. Sur. ..... Show gas 3,271 ft.; black lime; slight show gas; drlg. 3,411 ft.

JONES COUNTY

Anna Belle Oil Co.'s No. 1 Bickley, 330 ft. S and E of NW cor. SE NE Sec. 50, Blk. 18, T.&P. Sur. ..... Rig.

E. P. Campbell et al's No. 2-C Herndon, 330 ft. N and E of SW cor. NW Sec. 6, M.E.P.&P. Sur. ..... Drlg. 1,765 ft.

Cosden & Co.'s No. 1 Brown, 200 ft. N and 300 ft. W of SE cor. J. H. Grayson Sur. ..... Drlg. 580 ft.

Cosden & Herbert Oil Co.'s No. 1 Bickley, 320 ft. N and 319 ft. E of SW cor. S half NW Sec. 50, Blk. 18, T.&P. Sur. ..... Rig.

Grisham & Hunter's No. 1 Tiner, 311 ft. N and 330 ft. W of SE cor. Gabriel Zumwalt Sur. ..... Drlg. 785 ft.

Mid-Sun Oil Corp.'s No. 1 George Hoehn, 660 ft. N and W of SE cor. SE 40 ac. of N 160 ac. of W 320 ac. of A. Crain Sur. A-162 ..... Drlg. 2,265 ft.

McNeeley et al's No. 1 Roscoe Bland, 1,175 ft. N and 240 ft. W of SE cor. Subdivision 20, A-164, DeWitt Co. School Land ..... Spudded and shut down.

Phillips Pet. Co.'s No. 1 Campbell, 330 ft. S and E of NW cor. SE 41.5 ac. of S 166 ac. of N 180 ac., 4½ of Sec. 15, Blk. 19, T.&P.R.R. Sur. ..... Top lime 2,510 ft.; show oil 2,510-30 ft.; swabbed 41 bbls. 14 hrs. 2,530-45 ft.

Phillips Pet. Co.'s No. 1 Winters, Sec. 19, Blk. 19, T.&P. Sur. ..... Drlg. 2,780 ft.

Sedwick O. & G. Co.'s No. 1 Routh, 1,250 ft. N, 2,500 ft. W SE cor. 299-ac. tract, Austin & Williams Sur. 355-A-7 ..... Rig.

Sinclair O. & G. Co.'s No. 2 Buckley, 975 ft. S, 320 ft. E of NW cor. N half NE cor. Sec. 50, Blk. 18, T.&P. R.R. Sur. ..... Shot with 25 qts. 2,505-13 ft.; fishing 2,980 ft.

U. L. Tomberlin's No. 1 Horn, 1,980 ft. N and 600 ft. E of SW cor. of 502 ac. of Penney Sur. A-283 ..... Spudded and shut down.

LOVING COUNTY

Lockhart & Co.'s No. 1 H. L. Lepp, 330 ft. each way from S cor. of Sec. 3, Blk. 2, W.&N.W. Sur. ..... Cem. 10-in. 578 ft.

LYNN COUNTY

Miller et al's No. 1 May, 500 ft. N of C of S L of Sec. 10, Blk. 7, E.L.R.R. Sur. ..... Spudded and shut down.

MENARD COUNTY

Carpenter & Robbins' No. 1 Kothman, NW cor. SW SW Sec. 22 ..... Shut down 600 ft.

Sorrels & Jackson's No. 1 F. Wilhelm, C NE Sec. 6, Blk. C, Brooks & Burleson Sur. ..... Drlg. 1,320 ft.

MIDLAND COUNTY

Shoup et al's No. 1 Roy Parks, C NW Sec. 24, Blk. 41, Twp. 2s, T.&P. Sur. ..... Top salt 1,700 ft.; cem. 8⅛-in. casing 2,770 ft.; show oil 3,330 ft.; shut down 4,980 ft.

MITCHELL COUNTY

California Co.'s No. 6 Foster, Lease 1, 990 ft. N and 2,310 ft. E of SW cor. Sec. 6, Blk. 29, Twp. 1s, T.&P. Sur. ..... Testing casing 2,405 ft.

E. P. Campbell et al's No. 1 Pond, 1,065 ft. W, 660 ft. N of SE cor. Sec. 79, Blk. 27, T.&P. Sur. ..... Rerun 12½-in. casing 730 ft.; drlg. 2,650 ft.

Magnolia Pet. Co.'s No. 6 Foster, 1,980 ft. N and E of SW cor. Sec. 17, Blk. 29, Twp. 1s, T.&P.R.R. Sur. ..... Rig.

Simms Pet. Co.'s No. 1 Elwood, C SE of Sec. 29, Blk. 13, S.P.R.R. Sur. ..... Rig.

Teas & Wheeler's No. 1 Radford, 1,320 ft. N and W of Sec. 1, Blk. 27, T.&P. Sur. ..... Four bailers salt water per hr. 3,405 ft.; drlg. 3,530 ft.

NOLAN COUNTY

L. G. Bradstreet et al's No. 1 Kuteman, C NW Sec. 95, Blk. X, T.&P. Sur. ..... Rig.

Herbert Oil Co.'s No. 1 Pepper, C N half Sec. 32, Blk. 22, T.&P. Sur. ..... Show gas 3,160 ft.; hole full sulphur water 3,190-3,202 ft.; shut down 3,655 ft.

C. M. Root et al's No. 1 Simpson, 330 ft. S and W of NE cor. SE Sec. 33, Blk. 19, T.&P. Sur. ..... Swedging casing 2,330 ft.

W. E. O. & R. Co.'s No. 1 Allyn, 600 ft. E and 1,720 ft. N of SW cor. Sec. 48, Blk. 20, T.&P. Sur. ..... Underreaming 6⅝-in. casing 2,615 ft.

PECOS COUNTY

Alexander & Lyle's No. 1 Myrtle Sellman, C SW SE Sec. 20, Blk. Z, T.S.Ry. Sur. ..... Top salt 814 ft.; top lime 1,662 ft.; 3,400,000 ft. gas from 1,611-26 ft.; spraying very little oil; sulphur water 1,652 ft.; shut down 1,655 ft.

George Anderson's No. 1 University, C Sec. 11, Blk. 17 ..... Top salt 1,030 ft.; 7,000,000 ft. gas; drilled deeper to 1,997 ft.; 60 bbls. fluid, 98 per cent water; plugged back to gas at 1,962 ft.

M. H. Black's No. 1 P.V.O. Co., 2,310 ft. from SE and 1,650 ft. from SW lines Sec. 22, Blk. 10, H.&G.N. Sur. ..... Location.

California Co.'s No. 1 Smith, Lease 4, 1,010 ft. from N and E line Sec. 15, Blk. 194, G.C.&S.F. Sur. ..... Shut down 1,786 ft.

The California Co.'s No. 3 Smith, Lease 1, 1,789 ft. from N and 1,005 ft. from W lines, Sec. 21, Blk. 194, G.C.&S.F.R.R. Sur. ..... Drlg. 415 ft.

California Co.'s No. 7 Smith, Lease 1, 998 ft. from S and 1,738 ft. from W lines, Sec. 23, Blk. 194, G.C.&S.F.R.R. Sur. ..... Rig.

M. C. Dibble & Hale's No. 1 Bonebrake, Sec. 115, Blk. 5, H.&G.W. Sur., elev. 2,555 ft. ..... Top lime 1,305 ft.; set 6-in. casing 1,610 ft.; pulling 8¼-in. casing; total depth 2,004 ft.

Ditto Oil Co.'s No. 1 J. M. Montgomery, Sec. 104, Blk. 331, A-16,357 ..... Shut down 660 ft.

Doran & McGee's No. 1 P.V.O. Co., 150 ft. from SE and SW lines Sec. 22, Blk. 10, H.&G.N. Sur. ..... Location.

Gulf Prod. Co.'s No. 16 Smith-B, 990 ft. S and 990 ft. E of NW cor. Sec. 22, Blk. 194, G.C.&S.F.R.R. Sur. ..... Location.

Matador Oil Co.'s No. 3 Smith, 2,310 ft. from N and 990 ft. from E lines, Sec. 24, Blk. 194, G.C.&S.F.R.R. Sur. ..... Moving in machine.

Mauch & Kroger's No. 1 Holmes, Sec. 5, Blk. 178, T.C. Sur. ..... Shut down 1,010 ft.

McCarty Oil Co.'s No. 1 A. A. Gray, 1,520 ft. from S and 150 ft. from W lines Sec. 591, Abst. 3,010 ..... Drlg. 245 ft.

Mid-Kansas Oil & Gas Co.'s No. 12-C Yates, 811 ft. from N and 871 ft. from W lines Sec. 60, Blk. 1, L&G.N. R.R. Sur. ..... Drlg. 1,221 ft.; top pay 1,160 ft.; flowed 3,732 bbls. 10 hrs.

Mid-Kansas Oil & Gas Co.'s No. 8 Yates-H, 797 ft. N and 3,528 ft. E of SW cor. Sec. 32, Blk. 194, G.C.&S.F. R.R. Sur. ..... Location.

Pecos Valley Oil Co.'s No. 2 fee, 1,620 ft. from SW and 1,320 ft. from NW Sec. 22, Blk. 10, H.&G.N.R.R. Sur. ..... Drlg. 610 ft.

Phillips Pet. Co.'s No. 1 J. L. Nutt, 2,310 ft. from W and 330 ft. from S lines Sec. 9, Blk. 125, T.&St.L. Sur. ... Drlg. 1,420 ft.

Phillips Pet. Co.'s No. 1 Ramsey, 990 ft. from N and E lines, Sec. 17, Blk. 194, G.C.&S.F. Sur. ..... Moving in machine.

Stein & McGee's No. 1 Louis Paterson, 150 ft. SE of NW line, 150 ft. NE of SW Sec. 24, Blk. 10, H.&G.N. ..... Location.

R. J. Spikes' No. 1 George Brown ..... Shut down 700 ft.

Schumaker et al's No. 1 Williams et al, 330 ft. N of middle of S line Sec. 1, Blk. 117, G.C.&S.F. ..... Shut down 492 ft.

Southern C. O. P. Co.'s No. 1 Scharbauer Cattle Co., SW cor. Sec. 21, Blk. 134, T.&S.L. Sur. ..... Show gas 1,455-60 ft.; water 3,175 ft.; fishing 3,380 ft.

Talbot & Ditman's No. 1 Unsicker, 1,320 ft. from E and 660 ft. from S lines, Sec. 25, Blk. 10, H.&G.N. ..... Drlg. 1,005 ft.

Transcontinental Oil Co.'s No. 1 University, NE NW SW Sec. 18, Blk. 18 ..... Top lime 1,155 ft.; cleaning out 4,140 ft.

Trees Oil Co.'s No. 1 Trees, 330 ft. from N and E L of Sec. 63, Blk. 8 ..... Location.

World Oil Co.'s No. 1 Kloh, Sec. 47, Blk. 45, Twp. 8, T.P.R.R. Sur., elev. 2,810 ft. ..... Shut down 3,105 ft.

PRESIDIO COUNTY

Eastland Oil Co.'s No. 1 Smith, C Sec. 17, Certificate 463, or Blk. 351, G.C.&S.F.R.R. ..... Spudded and shut down.

Phillips Pet. Co., Empire G. & F. Co., Delmar Oil Co. and C. E. Miller's No. 1 Tootle Est., C NE Sec. 75, Blk. 3, D.&P.R.R. Sur. ..... Show wet gas 1,270 ft.; drlg. blue shale 1,960 ft.

L. C. Brite's No. 1 Lee, Sec. 50, Blk. 12, G.H.&S.A. Sur., center of section ..... Shut down 4,152 ft.; show oil 4,130 ft.; set 6-in. casing 4,152 ft.; drlg. 4,375 ft.

REAGAN COUNTY

Big Lake Oil Co.'s No. 1-C University, 2,598 ft. S and 250 ft. W of NE cor. Sec. 1, Blk. 2, University Land.. Location.

Big Lake Oil Co.'s No. 2-C University Land, 2,109 ft. N and 926 ft. W of SE cor. Sec. 1, Blk. 2, University Land ..... Location.

Big Lake Oil Co.'s No. 3-C University Land, 625 ft. S and 250 ft. W of NE cor. Sec. 1, Blk. 2, University Land ..... Location.

The California Co.'s No. 5 University, 2,310 ft. from N and E lines Sec. 16, Blk. 7, University Land ..... Top salt 1,280 ft.; drlg. 1,310 ft.

Texon O. & L. Co.'s No. 1-B University Group 1 ..... Top pay 6,250 ft.; hole full of oil; well made two small heads; oil sand 8,482 ft.; total depth 8,525 ft.; flowing 1,625 bbls. oil, daily.

REEVES COUNTY

D. P. Davis et al's No. 1 H. C. McCart, 300 ft. S and 200 ft. W of NE cor. S half NW Sec. 26, Blk. C-18 ..... Shut down 25 ft.

Exploration Co.'s No. 1 A. A. Kinney, 1,500 ft. W of NE cor. Sec. 26, Blk. C-18, Public School Land, elev. 2,847 ft. ..... Total depth 2,900 ft.; shut down.

Dr. Kitsis et al's No. 1 Kloh & Rumsey, 330 ft. N and W of SE cor. Sec. 5, Blk. 54, Twp. 5, T.&P. Sur. ..... Set 8-in. casing 1,010 ft.; shut down 1,150 ft. for orders.

David R. Thompson's No. 1 A. A. Eddins ..... Swedging casing 5,658 ft.; pulling 5-in. casing.

Robert Penn et al's No. 1 Bowles, 2,310 ft. SW of NE cor. Sec. 36, Blk. 50, Twp. 8, T.&P.R.R. Sur. ..... Oil show 226 ft.; drlg. 1,334 ft., blue shale.

Lee O. White et al's No. 1 Kloh-Rumsey, 660 ft. S and E of NW cor. Sec. 5, Blk. 51, Twp. 10, T.&P. Sur. .... Bldg. rig.

RUNNELS COUNTY

Boyce et al's No. 1 E. O. Lange, 2,300 ft. S and 6,900 ft. W of NE cor. Austin & Williams Sur. No. 262 ..... Drlg. 1,345 ft.

Foster et al's No. 1 Currie, 1,866 ft. SE of NW line, 135 ft. SW of NE L Gray Carroll Sur. ..... Spudded and shut down.

R. D. Hamilton et al's No. 1 A. Spill, 1,320 ft. S and W of NE cor. A. Spill 891 acres, out of Thomas R. Webb Sur. 358 ..... Shut down 100 ft.

McLean et al's No. 1 G. W. Clayton, 150 ft. N line, 270 ft. from W line Sec. 135, E.T.R.R. ..... Shut down 1,185 ft.

Nourse & Tilton's No. 1 R. A. Stokes, 200 ft. S, 600 ft. E of NW cor. G.C.&S.F. Sur. No. 2 ..... Shut down 2,340 ft.

H. B. Summers et al's No. 1 J. W. Reese, M. J. Parramore Sur. 26 ..... Shut down 1,650 ft.

Union Oil Co. of Nevada's No. 1 W. E. Allen, 1,000 ft. N and W of SE cor. Sec. 1, H.E.&W.T. Sur. ..... Drlg. 2,511 ft.

Vacuum Oil Co.'s No. 1 Brevard, 2,150 ft. N and 302 ft. E of SW cor. Lot 21, D. Diaz Sur. No. 532 ..... No show in sand at 2,525-29 ft.; shut down 2,580 ft.

SCHLEICHER COUNTY

J. P. Long and O. C. Long's No. 1 W. H. Williams, NE cor. Sec. 28, H.E.&W.T.R.R. Sur. ..... Shut down 275 ft.

SCURRY COUNTY

I. B. Mims et al's No. 1 J. J. Koonsman, Sec. 216, Blk. 3, H.&T.C. Sur. ..... Spudded and shut down.

G. E. Dieckman and R. B. Pender et al's No. 1 F. C. Davis, 1,000 ft. N and 1,770 ft. W of SE cor. of Sec. 275, Blk. 2, H.&T.C. Sur. ..... Shut down 1,810 ft.

STERLING COUNTY

F. & G. Oil Co.'s No. 1 W. L. Foster, C SE Sec. 20, Blk. 12, S.P.R.R. Sur. ..... Show oil 1,296-98 ft. and 1,356-58 ft.; drlg. 1,740 ft.

SUTTON COUNTY

Phillips Pet. Co.'s No. 1 A. G. Holman, 2,310 ft. S and 330 ft. W NE cor. Sec. 25, G.C.S.D.&N.G.R.R. Sur. ... Drlg. by tools 5,770 ft.

Southern C. O. P. Co.'s No. 1 Allison, 2,310 ft. S and 330 ft. W of NE Sec. 41, Blk. K, G.H.&S.A. Sur. .... Drlg. 500 ft.

TAYLOR COUNTY

Burnham et al's No. 1 A.M.Y.X. ..... Fishing for tools 2,140 ft.

Grisham-Hunter Corp.'s No. 1 Campbell, 330 ft. S and E of NW cor. SW Sec. 65, Blk. 19, T.&P. Sur. ..... Drlg. 330 ft.

Mid-Continent Oil & Gas Co.'s No. 1 Taylor, 990 ft. W 215 ft. N SE cor. 100-ac. tract, Sec. 18, Guadalupe School Land Sur. ..... Drlg. 2,280 ft.

Wents Oil Corp.'s No. 1 Armour, 375 ft. N and 330 ft. W of SE cor. W half Sec. 16, Blk. 6, S.P.R.R. Sur. ..... Rigging.

TERRELL COUNTY

Big Bend Oil Co.'s No. 1 Bassett, C NW Sec. 155, Blk. D, M.-K.-T.R.R. Sur. ..... Spudded and shut down.

Keck Pecos Trust Co.'s No. 1 Hamilton, C Sec. 6, Blk. D-7, E.L.&R.R. Sur. ..... Shut down 1,749 ft.

Mrs. J. B. McPhee's No. 1 Sam Belt, C Sec. 78, Blk. D-7, E.L.&R.R. Sur. ..... Location.

Milham Exploration Co.'s No. 1 Bassett, Sec. 76, Blk. Y, W. E. Robertson Sur. ..... Cem. 6⅝-in. casing 3,986 ft.; total depth 4,580 ft.; waiting on cable tools.

WICKWIRE SPENCER STEEL

For Strength and Uniformity Use

HERE is Dick Vitler, driller, on the left, and Fred Miller, tool dresser, on the right. Wickwire Spencer Wire Rope reels surely make a suitable background for these fellows. Coulbert and Lyle are the contractors on this well.

WICKWIRE SPENCER STEEL COMPANY
41 East 42nd Street, New York City

Wickwire Spencer Sales Corp.
1304 The Philtower, Tulsa, Okla.

T. T. Wood Supply Co.
Houston, Texas

Murray Tool & Supply Co.
Tulsa, Okla.

A. F. Keck & Company
Butler, Pa.

WICKWIRE SPENCER STEEL

WICKWIRE SPENCER UNIFORM WIRE ROPE
tests better than A.P.I. specifications

Woodley & Jones' No. 1 Pankenham, C SE NW Sec. 43, Blk. B-2, C.C.S.D.&N.G.R.R. Sur. ..... Shut down 150 ft.

TERRY COUNTY

Kingsland O. & P. Co.'s No. 1 Brownfield, C NW SW SW Sec. 7, Blk. 1-A, E.L.R.R. Sur. ..... Fishing bailer 5,080 ft.

TOM GREEN COUNTY

Collins et al's No. 1 Jones, CSL Sec. 646, Shaffer Sur. ... Shut down 1,800 ft.
Fitzgerald & Taliaferro's No. 1 Bennett, C SW Sec. 1,628, E. H. Ringer ..... Shut down 1,920 ft.
F. P. Green et al's No. 1 fee, 575 ft. from N and 1,450 ft. from W lines Sec. 165, District 11, S.P.R.R. Co. Sur. ..... Set 8-in. casing 1,810 ft.
McLaughlin & Ridge's No. 1 R. Q. Holder, 3,140 ft. N and 80 ft. W SE cor. J. P. Parker Sur. (3,000-ft. test) ..... Show gas 1,757-59 ft.; shut down 3,005 ft.; hole full water 2,986 ft.

UPTON COUNTY

Champlin Oil & Ref. Co.'s No. 4 J. F. Lane, 990 ft. from S, 330 ft. from W line of SE Sec. 2, G.C.&S.F. Sur. .. Top pay 1,940 ft.; pumping 40 bbls. oil and 470 bbls. water; shut down 1,979 ft.
Humble Oil & Ref. Co.'s No. 10 Ricker, 2,310 ft. from NE line and 3,280 ft. from NW line, Sec. 5, Mary Denton Sur. ..... Drlg. 2,164 ft.
Wentz Oil Co.'s No. 5 Shirk, 2,310 ft. N and 1,650 ft. W of SE cor. Sec. 35, Blk. 1, M.-K.-T.R.R. Sur. ..... Location.

YOAKUM COUNTY

Weekley Oil Corp.'s No. 1 Knight, C NW Sec. 791, Blk. D, John Gibson Sur. ..... Rigging up standard tools.

VAL VERDE COUNTY

Independent Operators' No. 1 Whitehead, SE SE Sec. 30, Blk. 4, I.&G.N. Sur., elev. 1,175 ft. ..... Shut down 4,600 ft. (corrected.)
O. O. Owens' No. 1 Mills, Sec. 128, Blk. 1, I.&G.N. Sur., elev. 2,130 ft. ..... Gas sand 2,491-2,520 ft.; tested 125,750 ft. gas; reset 8-in. 2,511 ft.; shut down 4,210 ft.
Producers Oil Co. et al's No. 1 Everett Bros., 2,310 ft. S and 330 ft. E of NW cor. Sec. 40, Blk. DB, C.C.S.D.&R.G.N.G. Sur. ..... Shut down 1,573 ft.
Dyar Bros. et al's No. 1 Wilson, 6,330 ft. N NE cor. Sec. 1, T.&P. Sur., thence 1,680 ft. E Sec. 115, Blk. E, G.C.&S.F. Sur. ..... Show oil and gas 1,053 ft.; shut down 2,605 ft.
Valvert Oil Corp.'s No. 1 Bassett, C NE Sur. 47, Blk. Y ... Set 15½-in. casing 767 ft.; set 10-in. casing 1,510 ft.; drlg. 2,800 ft.

WARD COUNTY

E. B. Lovelace et al's No. 1 Redman, 1,980 ft. NE of SW line and 1,980 ft. SE of NW line, Sec. 162, Blk. 34, H.&T.C.R.R. ..... Spudding and shut down.
Prairie O. & G. Co.'s No. 1 Sealy Est., 1,320 ft. S and W Sec. 95, Blk. A, G.M.M.B.&A. Sur. ..... Top salt 1,073 ft.; 5,000,000 ft. gas 2,526 ft.; gas decreased to 2,000,000 ft. at 2,637 ft.; hole full sulphur water 3,450 ft.; 5,000,000 ft. gas 2,526 ft.; shut down 3,506 ft.; trying to complete as gasser; plugged back to 2,531 ft.
Rector Oil Co.'s No. 1 Johnson, 1,150 ft. NW, 5,160 ft. NE Sec. 10, Blk. 32, H.&T.C. ..... Top salt 745 ft.; total depth 2,551 ft.; rig burned.
Talbot, Dittman & Atlantic O. P. Co.'s No. 1 Dorr, 1,320 ft. from SE line and 660 ft. from SW line of Sec. 9, Blk. 5, H.&T.C.R.R. Sur. ..... 3 bbls. water per hr. 910 ft.; set 10-in. casing 770 ft.; drlg. 2,590 ft.; water 2,550-70 ft..

WINKLER COUNTY

Amerada Pet. Corp.'s No. 2 Daugherty, SW cor. SE Sec. 3, Blk. 74 ..... Cem. 6-in. casing 2,657 ft.; est. 65,000,000 ft. gas at 3,110 ft.; slight spray oil and water; killing well.
Amerada Pet. Corp.'s No. 3 Daugherty, NW cor. NE SE Sec. 3, Blk. 74 ..... Top lime 2,812 ft.; running 8¼-casing 2,824 ft.; drlg. 2,893 ft.
Atlantic Prod. Co.'s No. 4 Hendricks, SW W half NE Sec. 44, Blk. 26 ..... Drlg. 1,385 ft.
V. T. Bolin et al's No. 2 Brown, 2,000 ft. S and W of NE cor. Sec. 4, Blk. B-5, Public School Land ..... Shut down 210 ft. water.
Barnsdall Oil Corp.'s No. 1 Tobe Morton, 330 ft. N and E of SW cor. Sec. 26, Blk. B-12 ..... Oil show 3,070 ft.; set pipe 3,128 ft.; straightreaming 3,230 ft.
Barnsdall Oil Corp.'s No. 2 Tobe Morton, 1,650 ft. N and 330 ft. E of SW cor. Sec. 26, Blk. B-12 ..... Set 12½-in. casing 547 ft.; drlg. 1,800 ft.
Barnsdall Oil Corp.'s No. 3 Tobe Morton, 990 ft. N and 330 ft. E of SW cor. Sec. 26, Blk. B-12 ..... Cellar.
Empire Gas & Fuel Co.'s No. 2 Daugherty, 330 ft. N and 2,310 ft. E of SW Sec. 3, Blk. 74 ..... Top lime 2,690 ft.; coring 3,105 ft.; 15,000,000 ft. gas 3,090 ft.; top pay 3,045 ft.; rigging up standard tools at 3,150 ft.; est. 66 bbls. daily 10,000,000 ft. gas; drlg. 3,146 ft.
Empire Gas & Fuel Co.'s No. 3 Daugherty, 330 ft. N and 990 ft. E of SW cor. Sec. 3, Blk. 74 ..... Top lime 2,774 ft.; cem. 9-in. casing 2,781 ft.; drlg. 3,080 ft.
Empire Gas & Fuel Co.'s No. 1-B Daugherty, 2,310 ft. S and 990 ft. W of NE cor. Sec. 3, Blk. 74 ..... Top lime 2,823 ft.; oil and gas show at 3,165 ft.; total depth 3,165 ft.; shut down.
Gulf Prod. Co.'s No. 3 Cowden, 1,310 ft. N, 330 ft. E of SW of their 240-ac. tract, Sec. 3, Blk. B-12 ..... Top salt 1,300 ft.; drlg. 1,850 ft.
Gulf Prod. Co.'s No. 4 Cowden, 495 ft. N and 330 ft. E of SW cor. of 240-ac. lease, Sec. 3, Blk. B-12 ..... Location.
Gulf Prod. Co.'s No. 2 Hendricks, 1,320 ft. N and 330 ft. W of SE cor. NW Sec. 44, Blk. 26, School Land .. Drlg. 1,206 ft.
Gulf Prod. Co.'s No. 2 O'Brien, NW cor. Sec. 31, Blk. F .. Cem. 8¼-in. casing 2,072 ft.; top lime 2,723 ft.; cem. 6-in. casing 2,798 ft.; 100,000 ft. gas at 2,935 ft., sandy lime; shut down 3,093 ft.; hole full water 3,075 ft.
Gulf Prod. Co.'s No. 3 O'Brien, Sec. 31, Blk. F ..... Set 10-in. casing 3,150 ft.; top lime 2,700 ft.; hole full of sulphur water 3,043 ft.; drlg. 3,082 ft.; pulling 6-in. casing 3,082 ft.
Humble Oil & Ref. Co.'s No. 2 Hendricks-C, Lease No. 2, 1,320 ft. S and 330 ft. E of NW cor. Sec. 10, Blk. B-12 ..... Top lime 2,442 ft.; cem. 6⅝-in. casing 2,448 ft.; drlg. 2,591 ft.
Humble Oil & Ref. Co.'s No. 4 Hendricks-C, 2,200 ft. N and 330 ft. E of SW cor. Sec. 10, Blk. B-12 ..... Location.
Humble Oil & Ref. Co.'s No. 5 Hendricks-C, 2,200 ft. N. and 2,310 ft. E of SW cor. Sec. 10, Blk. B-12 ..... Location.
Humble Oil & Ref. Co.'s No. 6 Hendricks-C, 1,320 ft. N and 2,310 ft. E of SW cor. Sec. 10, Blk. B-12 ..... Location.
Humble Oil & Ref. Co.'s No. 7 Hendricks-C, 440 ft. S and 990 ft. E of NW Sec. 10, Blk. B-12 ..... Location.
Humble Oil & Ref. Co.'s No. 8 Hendricks-C, 440 ft. S and 1,650 ft. E of NW Sec. 10, Blk. B-12 ..... Location.
Independent O. & G. Co.'s No. 3 McCabe, 990 ft. S and 2,310 ft. W of NE cor. Sec. 36, Blk. B-5, School Land.. Top salt 950 ft.; top lime 2,296 ft.; oil show 2,515 ft.; 1,800 ft. oil in hole; total depth 3,249 ft.; plugged back 3,132 ft.; preparing to plug.
Independent Oil & Gas Co.'s No. 3-B Hendricks, NW W half SE Sec. 44, Blk. 26 ..... Shut down waiting orders to plug.
Magnolia Pet. Co.'s No. 1 Scarborough, 2,310 ft. S and 990 ft. E Sec. 1, Blk. C-22 ..... Top salt 1,122 ft., gas show 2,840-45 ft.; flowed 145 bbls. daily.
Marland Oil Co.'s No. 1 Tobe Morton, SE cor. Sec. 27, Blk. B-12 ..... Cem. 12½-in. casing 492 ft.; top lime 2,652 ft.; cem. 8¼-in. casing 2,656 ft.; oil show 2,780 ft.; drlg. 2,993 ft.; flowed 265 bbls.
Marland Oil Co.'s No. 2 Tobe Morton, 990 ft. N and 330 ft. W of SE cor. Sec. 27, Blk. B-12 ..... Set 12½-in. casing 405 ft.; top salt 1,620 ft.; cem. 8¼-in. casing 2,680 ft.
Morris & Henshaw's No. 1-B Hendricks, 1,650 ft. N and 990 ft. E of SW cor. Sec. 28, Blk. B-5, School Land.. Top pay 3,040 ft.; total depth 3,045 ft.; flows 15 bbls. daily.
Prairie Oil & Gas Co.'s No. 5 Cowden, 1,320 ft. N and 990 ft. E of SW cor. Sec. 3, Blk. B-12, School Land.. Cem. 8¼-in. casing 2,493 ft.; lime 2,450 ft.
Prairie Oil & Gas Co.'s No. 6 Cowden, 440 ft. N and 990 ft. E of SW cor. Sec. 3, Blk. B-12, School Land ..... Location.
Prairie O. & G. Co.'s No. 1 Leck, 330 ft. S and 2,310 ft. E of NW cor. Sec. 16, Blk. 74 ..... Cem. 12½-in. casing 240 ft.; cem. 8-in. casing 2,663 ft.; spray 3,150 ft.; standardizing.
Prairie O. & G. Co.'s No. 2 Leck, 330 ft. S and 2,310 ft. W of NE cor. Sec. 16, Blk. 74 ..... Total depth 3,075 ft.
Prairie O. & G. Co.'s No. 1 Tobe Morton, 330 ft. N and 1,650 ft. W of SW cor. Sec. 27, Blk. B-12 ..... Cem. 12½-in. casing 500 ft.; cem. 8¼-in. casing 2,770 ft.; top lime 2,865 ft.; shut down for orders 3,072 ft.; hole full sulphur water at 3,080 ft.; shut down for orders 3,112 ft.
Pure Oil Co.'s No. 1 Hendricks, NE SW Sec. 44, Blk. 26 .. Set 12½-in. casing 896 ft.
Shell Pet. Co. et al's No. 2 Lum Daugherty, 2,310 ft. S and 1,650 ft. W of NE Sec. 3, Blk. 74 ..... Top lime 2,742 ft.; total depth 3,208 ft.; est. 5,000 bbls. daily salt water; plugged back to 170 ft.; tested 46 bbls. oil, per cent water, 12 hrs.
Skelly Oil Co.'s No. 1 Morton, 2,310 ft. N and 165 ft. W of SE cor. Sec. 27, Blk. B-12, School Land Sur. ..... Location.
Simms Oil Co. and Southwest O. P. Co.'s No. 1 George Sealey, 2,434 ft. S and 330 ft. W of NE cor. Sec. 50, Blk. F ..... Top lime 2,676 ft.; drlg. 2,676 ft.; rigging up standard tools.
Simms Pet. Co. et al's No. 2 Sealey, 2,434 ft. S and 990 ft. W of NE cor. Sec. 50, G.M.M.&A. Sur. ..... Location.
Southern C. O. P. Co. and Westbrook Thompson's No. 4 Hendricks T-88-B, 330 ft. S and 1,320 ft. E NW cor. Sec. 4, Blk. B-12, Public School Land ..... Top lime 2,721 ft.; drlg. 2,837 ft. lime.
Southern C. O. P. Co. and Westbrook-Thompson's No. 3 Hendricks T-89-C, 2,310 ft. N and W of SE cor. Sec. 35, Blk. B-5 ..... Cem. 8¼-in. casing 2,290 ft.; rigging up standard tools; drlg. 2,707 ft.; gas how 2,603 ft.
Southern C. O. P. Co.'s No. 6 Hendricks T-88-D, 440 ft. N and 1,320 ft. W of SE cor. Sec. 4, Blk. B-12 ..... Location.
Southern C. O. P. Co.'s No. 3 Hendricks T-89-J, 2,200 ft. N and 330 ft. W of SE cor. Sec. 9, Blk. B-12, School Land ..... Location.
Texas Canadian Oil Co.'s No. 1 Kloh-Rumsey, 1,320 ft. N and E of SW cor. Sec. 35, Blk. 46, T.&P.R.R. Sur.. Bldg. rig.
Texon Oil & Land Co.'s No. 6 Grisham & Hunter-B, 1,320 ft. N and 990 ft. E of SW cor. Sec. 45, Blk. 26.. Location.
Warner-Quinlan Co.'s No. 1 Daugherty, 2,310 ft. S and E of NW cor. Sec. 3, Blk. 74, Public School Land ... Cem. 8¼-in. casing 2,671 ft.; drlg. 2,984 ft.

WILDCAT OPERATIONS IN OKLAHOMA

(Continued from Page 66)

MUSKOGEE COUNTY

Elk Drilling Co.'s No. 1 Jones, SW cor. SW Sec. 34-13-17 ..... Shut down 400 ft.
L. T. Haney's No. 1 Mitchell, SE cor. NW SE Sec. 33-13-18 ..... Drlg. 2,320 ft.
J. L. Slusher's No. 1 Nave, NE cor. SW NW Sec. 20-15-20 ..... Shut down 775 ft.

HUGHES COUNTY

E. W. Whitney and others' No. 1 Moore, SE cor. SW Sec. 17-5-9 ..... Underreaming 3,345 ft.
Pure Oil Co.'s No. 1 Fixico, NE cor. SW Sec. 18-8-9 ... Dry and abandoned 4,500 ft.
Howard Petroleum Co.'s No. 1 Gilbert, NW cor. SE Sec. 25-8-10 ..... Drlg. 4,428 ft.
Gypsy Oil Co.'s No. 1 McGirt, NE cor. NW SW Sec. 21-6-8 ..... Sand 3,310-30 ft.; corrected, hole full water.
T. B. Slick, Inc.'s No. 1 Epperly, NW cor. NE NW Sec. 32-6-8 ..... Dry in Wilcox 4,655 ft.; plugging back.

CANADIAN COUNTY

Wirt Franklin Pet. Co.'s No. 1 North, NW cor. NW Sec. 18-13-10w ..... Drlg. 3,130 ft.

OKLAHOMA COUNTY

Slick & Bailey's No. 1 Koester, C SE NE Sec. 18-13-3w... Drlg. 4,815 ft.
Cromwell & Franklin's No. 1 Thompson, SW cor. NE NE Sec. 15-12-3w ..... Drlg. core head 7,124 ft.
Indian Terr. Ill. Oil Co.'s No. 1 fee, C SE SE Sec. 24-11-3w ..... Flowing 5,697 bbls. daily from 6,498 ft.

OKFUSKEE COUNTY

Moose & Daniels' No. 1 Stidham, SW cor. NW Sec. 4-11-10 ..... Shut down 622 ft.
T. B. Slick, Inc.'s No. 1 Wolf, SE cor. NE SE Sec. 21-11-7. Standardizing 3,900 ft.
Erwin and others' No. 1 Patterson, NW cor. SE Sec. 15-13-9 ..... Location.

SEQUOYAH COUNTY

Cooper & Badger's No. 1 Young, NW cor. NE NE Sec. 7-12-20 ..... Shut down.
Hunt and others' No. 1 Unknown, SE cor. NW SW Sec. 12-12-23 ..... Drlg. 900 ft.
Buffington et al's No. 1 Meicher, C SW NW Sec. 31-12-24 ..... Drlg. 2,220 ft.

PAWNEE COUNTY

Washoma Oil Co. and others' No. 1 Buffalo, SE cor. NE Sec. 33-22-5 ..... Plugging back to 3,200 ft.

POTTAWATOMIE COUNTY

Phillips-Atlantic's No. 1 Winrow, SW cor. NE NE Sec. 11-9-4 ..... Dry and abandoned 4,672 ft.
Shell Pet. Corp.'s No. 1 Livingston, SW cor. SE Sec. 23-7-5 ..... Standardizing 4,328 ft.
Superior Oil Co.'s No. 1 Herminghausen, SW cor. NW NE Sec. 24-8-2 ..... Standardizing 4,926 ft.
Shell Pet. Corp.'s No. 1 Lowe, SW cor. NW NE Sec. 17-6-5 ..... Cleaning out 4,920 ft.
Pure Oil Co.'s No. 1 Lindley, SE cor. SW SE Sec. 18-8-5.. Hunton 4,124-40 ft.; flowing 1,000 bbls.
T. B. Slick's No. 1 Sailor, SE cor. NW NW Sec. 12-8-3... Drlg. 3,665 ft.
T. B. Slick and Shell Pet. Corp.'s No. 1 Hurst, SE cor. NW NW Sec. 17-7-2 ..... Fishing 6,098 ft.
Shell Pet. Corp.'s No. 1 Wyatt, SW cor. NW NE Sec. 17-6-5 ..... Dry and abandoned 4,414 ft.
Mid-Continent Petroleum Corp.'s No. 1 James, SE cor. SE Sec. 22-5-3 ..... Location.

CADDO COUNTY

J. B. Bailey's No. 1 Hubbard, C NE NW Sec. 1-10-6w ... Shut down 150 ft.
Wirt Franklin's No. 1 North, NW cor. NW Sec. 13-10-13w. Drlg. 1,775 ft.
W. J. Hartley's No. 1 Galbreath, SE cor. NW SE Sec. 29-5-12w ..... Shut down 3,394 ft.
English Drilling Co.'s No. 2 Pruitt, CNL NW SE Sec. 22-6-10w ..... Rigged up and shut down.
Red Bank Oil Co.'s No. 1 Shanklin, C NW Sec. 15-12-11w. Dry and abandoned 4,603 ft.

STEPHENS COUNTY

Stahl & Burris' No. 1 Jefferson, SE cor. NE NW Sec. 2-1-7w ..... Shut down 2,624 ft.

SEMINOLE COUNTY

Prairie Oil & Gas Co.'s No. 1 Davis, NE SE Sec. 31-10-7.. Drlg. 3,737 ft.
Superior and Fuhrman's No. 1 Fay, NW cor. SE SW Sec. 27-11-6 ..... Wilcox 4,770-73 ft; 2,000 ft. wtr.
Magnolia Pet. Co.'s No. 1 Germany, SE cor. NW Sec. 30-9-5 ..... Underreaming 4,405 ft.; 1 bailer water per hour from Simpson.
Phillips Pet. Co.'s No. 1 Miller, NW cor. SW Sec. 34-11-7 ..... Drlg. 3,450 ft.
Burke-Greis Oil Co.'s No. 1 Cyrus, SE cor. NE NW Sec. 13-9-7 ..... Fishing 3,420 ft.

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At any point of contact trained men, versed in the problems of the industry are ready and happy to serve you, whether it is in consulting with you about a ½ hp. electric motor for a filling station, or a 500 hp. motor for a new pipe line installation, whether it is about supplying water or gas for any of your operations.

General

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Breckenridge, Texas

Winchester Water Works Co.
Winchester, Ky.

Indiana Water Works Co.
District Office
Washington, Indiana

Boise Water Corp.
Boise, Idaho

Natatorium Co.
Boise, Idaho

Jersey Shore Water Co.
Jersey Shore, Pa.

Portage Water Co.
Portage, Pa.

Lloydell Water Co.
Lloydell, Pa.

Freeport Water Co.
Freeport, Pa.

Harris and others' No. 1 Stidham, SE cor. NW Sec. 30-9-8 ..... Dry and abandoned 4,532 ft.
C. B. Shaffer's No. 1 Carolina, SE cor. SW NE Sec. 4-6-7. Drlg. 4,725 ft.
E. W. Whitney's No. 1 Harjo, NE cor. NW NE Sec. 25-7-6 ..... Plugged back 4,325 ft. and shut down.
Gypsy Oil Co.'s No. 1 Andrews, NE SE NW Sec. 27-10-7 ..... S.D. 3,770 ft.
Shaffer Oil & Ref. Co.'s No. 1 Catchochee, SW cor. SW NE Sec. 18-10-7 ..... Dry and abandoned 3,782 ft.
T. W. Adkins' No. 1 Reed, NE cor. NW Sec. 2-8-8 ..... Drlg. 4,185 ft.
T. B. Slick, Inc.'s No. 1 Tiger, NW cor. SW SE Sec. 13-8-5 ..... Dry and abandoned.
McCulloch Oil Co.'s No. 1 McGilbray, SW cor. SW NE Sec. 4-8-8 ..... Hole full of water 1,940 ft.
Empire Gas & Fuel Co.'s No. 1 Harjo, SW cor. NW SE Sec. 17-7-6 ..... Hole full water, Wilcox 4,593-4,600 ft.
Marland Oil Co.'s No. 1 Strothers, NW cor. SE NE Sec. 5-10-7 ..... Fishing 3,550 ft.
Magnolia Pet. Co.'s No. 1 Carroll, SW cor. NW SE Sec. 1-7-5 ..... Drlg. 4,365 ft.
T. B. Slick and others' No. 1 Davis, NE cor. NE Sec. 26-6-6 ..... S.D. 1,085 ft.

TILLMAN COUNTY

Allen & Treadwell's No. 1 Howell, NW cor. SE Sec. 13-1-17w ..... Drlg. 600 ft.

MAJOR COUNTY

Randau & Mooney's No. 1 Parker, SE cor. NE NW Sec. 4-23-16w ..... Show oil 1,235 ft.; shut down.
Earl and others' No. 1 Turner, C NE NE Sec. 23-20-14w.. Rig.
Wilson et al's No. 1 Unknown, NE cor. NE Sec. 4-23-16w. Cellar.

WOODS COUNTY

E. K. Miller's No. 1 Copenhavers, NW cor. NW Sec. 18-24-13w ..... Rig.
Gypsy-Prairie and others' No. 1 Thompson, SE cor. SW Sec. 10-25-15w ..... Casing 1,346 ft.
Sinclair Oil & Gas Co.'s No. 1 Thompson, C SW SW Sec. 33-27-16w ..... Moving in tools.

MURRAY COUNTY

Bison Oil Co.'s No. 1 Labor, NW cor. NW Sec. 17-1-2.... Shut down for casing 1,900 ft.

DEWEY COUNTY

Huckaby & McCoy's No. 1 Perfect, NE cor. NE Sec. 9-18-15w ..... Shut down 4,355 ft.
Don Sifers' No. 1 Jordan, SW cor. NW Sec. 16-16-17w .. Spudded and shut down.

BECKHAM COUNTY

C. & H. Petroleum Co.'s No. 1 Barnes, SW cor. NW NE Sec. 32-9-22w ..... Shut down 3,460 ft.
Martin and others' No. 1 Cluck, NW cor. SE Sec. 1-8-25w. Drlg. 2,610 ft.
L. C. Hivicks' No. 1 Davis, C NW NE Sec. 4-11-26w .... Shut down 725 ft.
Producers Exploration Co.'s No. 1 Seidell, SE cor. SW SW Sec. 17-9-22w ..... Shut down 2,402 ft.
Carson and others' No. 1 Danby, SW cor. SE NE Sec. 20-8-22w ..... Drlg. 835 ft.
Pferffel and others' No. 1-A Carter, NE cor. NE Sec. 35-9-22w ..... Shut down 1,500 ft.
Day Oil Co.'s No. 1 Ault, NW cor. NW Sec. 33-8-21w.... Drlg. 1,536 ft.

GRADY COUNTY

Remington and others' No. 1 Fryrear, SW SW NE Sec. 13-9-5w ..... Shut down 720 ft.
J. V. Bailey's No. 1 Hubbard, C NE NW Sec. 1-10-6w .... Spudded and shut down.
J. M. Henry and others' No. 1 Abraham, SE cor. NW Sec. 4-5-8w ..... Rig.
J. B. Nichols' No. 1 Brake, SE cor. NE SE Sec. 7-5-7w.... Shut down 2,307 ft.

McINTOSH COUNTY

Marione and others' No. 1 Smith, SW cor. NW SE Sec. 32-9-16 ..... Shut down 2,387 ft.; corrected.
Patterson and others' No. 1 Smith, SW cor. NW SE Sec. 32-9-16 ..... Shut down 5,451 ft.
Wolfe and others' No. 1 Unknown, NW cor. SE Sec. 15-12-18 ..... Rig on ground.

CLEVELAND COUNTY

Daniels & LeWright's No. 1 Vandever, C SW Sec. 15-7-1w ..... Shut down 3,130 ft.
Phillips Pet. and T. B. Slick's No. 1 Hentleman, NE cor. NE Sec. 8-10-2w ..... Drlg. 3,760 ft.

KIOWA COUNTY

Blue Mountain Oil Co.'s No. 1 Jones, SE cor. NW NW Sec. 17-5-14w ..... Shut down 530 ft.
Johnson & McDowell's No. 1 Thompson, SW cor. NE Sec. 6-6-15w ..... Shut down 2,700 ft.
Adams et al's No. 1 Fanning, NW cor. SW Sec. 2-6-17w.. Machine.
Dave Malernee's No. 1 Van Kirk, NW cor. NW Sec. 35-7-15w ..... Shut down 858 ft. in granite.
A. C. Varner and others' No. 1 Bonham, CSL NW NW Sec. 5-6-18w ..... Shut down 1,127 ft.

CUSTER COUNTY

W. E. Witt's No. 1 Wellman, C SE Sec. 1-14-14w ..... Rig and tools.

PONTOTOC COUNTY

Moore & Curran's No. 1 Allen, SE cor. SW SW Sec. 23-5-5 ..... Shut down 1,460 ft.

COMANCHE COUNTY

Green and others' No. 1 Wilson, C NE SW Sec. 14-1-1w. Shut down 4,055 ft.
Wirt Franklin Pet. Co.'s No. 2 Holler, NW cor. NW Sec. 2-4-11w ..... Drlg. 3,023 ft.

COAL COUNTY

Indian Territory Illuminating Oil Co.'s No. 1 Cook, SW cor. NW Sec. 10-1-11 ..... Drlg. 5,735 ft.
Robert Galbreath and others' No. 1 Jones, SW cor. SE Sec. 24-1-9 ..... Shut down 3,270 ft.

PITTSBURG COUNTY

Kerr & Koy's No. 1 Hall, C NW NW Sec. 32-4-12 ..... Spudded.

JACKSON COUNTY

Altus Oil Co.'s No. 1 Northington, NE cor. NE Sec. 4-1-20w ..... Shut down 2,020 ft.

SOUTHERN OKLAHOMA

BRYAN COUNTY

Alexander & Oppenheimer's No. 1 Hampton, SE cor. NE Sec. 26-7s-11 ..... Shut down 1,425 ft.
McNull & Gross' No. 1 Smith, CEL SE NW NE Sec. 11-6s-9e ..... Shut down 375 ft.

MURRAY COUNTY

Alter and others' No. 1 Johnson, SW cor. NW Sec. 14-4-7. Spudded and shut down.

COTTON COUNTY

Cuyler & Pyson's No. 1 Thomas, SE cor. SE SW Sec. 16-4-12w ..... Shut down 2,127 ft.

JEFFERSON COUNTY

Bridwell et al's No. 1 Trout, CEL NE Sec. 33-6s-6w .... Drlg. 1,528 ft.
Amerada Pet. Corp.'s No. 1 Emerson, NW cor. SE SW Sec. 28-5s-8w ..... Shut down 4,516 ft.

CHOCTAW COUNTY

Choctaw Petroleum Co.'s No. 1 Wilson, SW cor. SW Sec. 15-6-19 ..... Shut down 1,346 ft.

TILLMAN COUNTY

Bray and others' No. 1 Barker, NE cor. SW NW Sec. 9-1-15w ..... Shut down 805 ft.
Dixie Oil Co.'s No. 1 McKinney, NE cor. NE Sec. 29-3s-18w ..... Drlg. 1,820 ft.
Stanley & Gregor's No. 1 Mock, NW cor. NW SW Sec. 33-1-20w ..... Dry and abandoned 2,445 ft.
Landfair and others' No. 1 Smith, SE SW SE Sec. 6-2s-15w ..... Shut down 2,535 ft.

JOHNSON COUNTY

Wapanucka Oil Co.'s No. 1 Banks, Sec. 28-2s-9 ..... Shut down 1,530 ft.
Bush Creek Oil Co.'s No. 1 Kirby, SE cor. NE NW Sec. 9-4-7 ..... Shut down for casing 405 ft.
Smith & Kinsley's No. 1 Lane, SE cor. NW Sec. 29-1-7... Shut down 1,306 ft.
Yale Oil Syndicate's No. 1 Craige, C NW NE Sec. 36-9s-9e ..... Drlg. 865 ft.
Sullivan and others' No. 1 Wines, NW NE NW Sec. 11-7s-5e ..... Shut down 475 ft.
E. J. Stump and others' No. 1 McGinnis, SW Sec. 26-3s-8w ..... Rig.
McCrow and others' No. 1 Trust, SW Sec. 12-1s-3e .... Drlg. 1,620 ft.

CARTER COUNTY

Devonian Oil Co.'s No. 1 Myer, NW cor. SE Sec. 19-5s-3w. Drlg. 1,710 ft.
Avon-Dickey's No. 1 Anderson, NE cor. SE NE SE Sec. 32-4s-2 ..... Spudded.
Schermerhorn Oil Co.'s No. 2 Jolifff, NE NW Sec. 24-5s-1e ..... Spudded.
Humble Oil & Ref. Co.'s No. 1 Hitchcock, SE NE Sec. 12-4s-3e ..... Drlg. 920 ft.

WILDCAT OPERATIONS IN KANSAS

(Continued from Page 68)

HARPER COUNTY

Amerada Pet. Corp.'s No. 1 Mendiville, C E SE Sec. 24-34-6w ..... Cleaning out 5,353 ft.

HARVEY COUNTY

R. S. Austin's No. 1 Nieman, SW cor. SW Sec. 21-24-2 .. Drlg. 2,975 ft.
Mrs. Gay et al's No. 1 Grove, C NW NE NW Sec. 29-23-1w ..... Rig.
Helmerich & Payne's No. 1 Lindamond, C SW NE SW Sec. 2-22-1e ..... Spudded and shut down.

JEFFERSON COUNTY

Wichiet Oil Co.'s No. 1 Simpson, NW cor. SW SW Sec. 19-10-17 ..... Rigged up and shut down.

JACKSON COUNTY

Garvin & Morton's No. 1 Lutes, SW cor. NW NW Sec. 27-7-15 ..... Shut down 940 ft.

LANE COUNTY

Blankenship Pet. Co.'s No. 1 Schaeffer, NE cor. NE Sec. 24-16-28w ..... Spudded and shut down.

MARSHALL COUNTY

Irwin et al's No. 1 Cooper, NE cor. NW Sec. 10-3-7..... Shut down 600 ft.

MARION COUNTY

Empire Oil & Ref. Co.'s No. 1 Burhart, SE cor. NE NE Sec. 11-20-3 ..... Shut down 2,400 ft.
J. E. Hauna's No. 1 Pankratz, NE cor. NE SW Sec. 13-20-3 ..... Rig.
A. E. Meyers' No. 1 Papp, SW cor. SW NE Sec. 10-18-2.. Spudded.

MEADE COUNTY

Blackwell O. & G. Co.'s No. 1 Beyer, SE cor. NW SE Sec. 9-33-28w ..... 500,000 ft. gas and 2 bailers water; total depth 4,356 ft.

McPHERSON COUNTY

Ted Washabaugh's No. 1 Vosshell, NE cor. NE Sec. 9-21-3w ..... Drlg. 2,170 ft.
Lariaux et al's No. 1 Martinson, NE cor. Sec. 9-19-3w... Rig.
McPherson Gas Co.'s No. 1 Stein, SW cor. NE SW Sec. 17-18-1w ..... Drlg. 3,373 ft.
McPherson Gas Co.'s No. 1 Gustafson, C NE Sec. 9-17-2w ..... Shut down 3,597 ft.
W. C. Newman's No. 1 Diepenbrock, NW cor. NE Sec. 17-17-1w ..... Underreaming 3,478 ft.
McPherson Gas Co.'s No. 1 Wedell, C SW Sec. 12-20-2w ..... 5,000,000 ft. gas 2,983 ft. casing
Vickers Pet. Co.'s No. 1 Wedell, C SW Sec. 12-20-2w... Rig.
Mid-Kansas Oil & Gas Co.'s No. 1 Yoder, C NW SW Sec. 8-20-4w ..... Drlg. 1,516 ft.
Marland Prod. Co.'s No. 1 Wilkering, C SW SW Sec. 9-21-1w ..... Drlg. 1,460 ft.

NESS COUNTY

Barnsdall Oil Co.'s No. 1 Lauk, C SW Sec. 35-18-21w.... Casing 600 ft.

OSBORNE COUNTY

L. D. Jarvis' No. 1 Jellison, SE cor. SE Sec. 13-10-15w... Spudded and shut down.

OTTAWA COUNTY

Anderson et al's No. 1 Bank, NE cor. NW Sec. 28-10-2w.. Shut down 2,820 ft.

PAWNEE COUNTY

F. C. Troupe's No. 1 Lovett, CEL NE NE Sec. 31-21-16w. Shut down 1,560 ft.

PHILLIPS COUNTY

Watsonia Oil Co.'s No. 1 Marklein, NE cor. SW Sec. 21-3-19w ..... Shut down 3,015 ft.
British American Oil Co.'s No. 1 Weinman, C SW SW Sec. 34-2-19w ..... Rig.

RENO COUNTY

Austin Drilling Co.'s No. 1 Strickley, SW cor. NW Sec. 17-25-5w ..... Rig.

RICE COUNTY

Allison & Fitzwilliams' No. 1 Poland, NE cor. SW NE Sec. 36-19-8w ..... Cellar.
Higgins & Stembubble's No. 1 Shurr, NE cor. SW Sec. 21-20-10w ..... Spudded and shut down.

ROOKS COUNTY

Prairie Oil & Gas Co.'s No. 1 Sandberg, C SW Sec. 20-9-18w ..... Drlg. 1,300 ft.
Krueger et al's No. 1 Poore, NE cor. NE Sec. 14-8-16w.. Drlg. 3,560 ft.
Burford & Brimm's No. 1 Toxa, NE cor. SW SE Sec. 22-19-17w ..... Spudded and shut down.
Skelly and Midwest's No. 1 Jones, SW cor. NE NW Sec. 28-7-16w ..... Shut down 3,485 ft.

RUSH COUNTY

Phillips Pet. Co.'s No. 1 Legleiter, NE cor. NW SE Sec. 10-16-18w ..... Drlg. 610 ft.
Sinclair Oil & Gas Co.'s No. 1 Berching, NW cor. NE NW Sec. 9-16-16w ..... Fishing 3,474 ft.
Danciger Oil & Ref. Co.'s No. 1 Poland, NE cor. SW NE Sec. 17-19-17w ..... Shut down 530 ft.

RUSSELL COUNTY

Joe Liggett's No. 1 Maier, SE cor. NE SE Sec. 8-11-15w.. Top Oswald 3,016 ft.; show oil and water; drlg. 3,280 ft.

SALINE COUNTY

M. Estey et al's No. 1 Peterson, C NE Sec. 6-16-5w..... Spudded and shut down.
Boyle et al's No. 1 Miller, SW cor. SE Sec. 21-16-1w..... Cleaning out 2,615 ft.
Nathan Jones et al's No. 1 Robertson, NW cor. SW Sec. 27-14-2w ..... Underreaming 2,847 ft.

SEDGWICK COUNTY

Bu-Vi-Bar et al's No. 1 Roberts, SE cor. SW Sec. 1-26-2w ..... Rig.
E. B. Shawver et al's No. 1 Broels, NE cor. SW Sec. 5-28-2e ..... Drlg. 2,110 ft.
Barnsdall Oil Co.'s No. 1 Means, NW cor. SW Sec. 34-27-2 ..... Drlg. 2,250 ft.
Lewis et al's No. 1 Taylor, NW cor. NE Sec. 23-27-2.... Drlg. 1,117 ft.
J. H. Tatlock et al's No. 1 Goelder, NW cor. NE Sec. 6-29-2e ..... Underreaming 2,341 ft.
Hyser et al's No. 1 Stroot, SW cor. NW Sec. 8-26-2w.... Drlg. 820 ft.
Maglason et al's No. 1 Buckles, NW cor. SE Sec. 3-28-1w. Shut down 250 ft.
McCulloch Oil Co.'s No. 1 John, C NE SW NE Sec. 24-29-1e ..... Fishing 1,804 ft.
Morgan & Tilley's No. 1 Fitzgerald, NW cor. NE Sec. 5-26-1w ..... Rig.
Barnsdall Oil Co.'s No. 1 Faber, SW cor. NW Sec. 6-27-1w ..... Cleaning out 3,010 ft.
Bu-Vi-Bar Pet. Co.'s No. 1 Steel, SE cor. SE Sec. 1-26-2w. Underreaming 3,310 ft.
Connell & Slick's No. 1 Cross, NE cor. NE Sec. 27-25-1w. Underreaming 2,975 ft.
VanZant & Mason's No. 1 Fox, C NW SW Sec. 19-25-1w.. Fish. 3,030 ft.
Barnsdall Oil Co.'s No. 1 Samuels, NE cor. NW Sec. 24-25-1 ..... Swb. 70 bbls. 3 hrs. 3,121 ft.
Marland Prod. Co.'s No. 1 Goodrich, SW cor. NE SW Sec. 16-25-1 ..... Flowed 2,120 bbls. in 12 hours; pinched in.
Shell Pet. Corp.'s No. 1 Lygrisse, SE cor. NE Sec. 15-26-2e ..... Spudded.

SHERMAN COUNTY

A. L. Henson et al's No. 1 Murry, NE cor. SE NW Sec. 22-7-40w ..... Shut down 3,035 ft.

STEVENS COUNTY

Trees Oil Co.'s No. 1 Thompson, C NE SW Sec. 3-35-38w. Casing trouble 600 ft.
W. Sidwell et al's No. 1 Kelly, SW cor. NE Sec. 16-34-38w ..... Shut down 1,213 ft.
McKenna et al's No. 1 Haun, SE cor. NE Sec. 10-33-38w. Drlg. 1,720 ft.

SMITH COUNTY

Mid-Kansas Oil & Gas Co.'s No. 1 Unknown, NE cor. NE Sec. 4-2-13w ..... Rig.

SUMNER COUNTY

McCulloch Oil Co.'s No. 1 Teetle, SW cor. NE Sec. 29-34-1w ..... Drlg. 4,479 ft.
Gypsy Oil Co.'s No. 1 Williams, NW SE SW Sec. 16-35-3w ..... Fishing 4,400 ft.
Helmerich & Payne's No. 1 Warlick, SE cor. NE Sec. 8-34-2 ..... Dry and abandoned 3,854 ft.
Otstot et al's No. 1 Barlow, SE cor. SE Sec. 22-23-3w... Plugging back to 4,150 ft.
Davidson and others' No. 1 Strickland, SW cor. SE Sec. 12-35-1w ..... Rig.

TREGO COUNTY

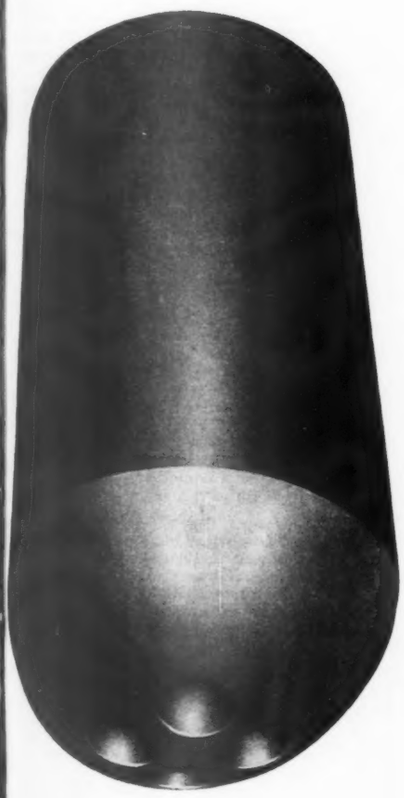
Central Commercial Oil Co.'s No. 1 Ellis, NE cor. SW NE Sec. 20-13-21w ..... Drlg. 3,180 ft.

WASHINGTON COUNTY

McCool & Vincent's No. 1 Linn, NW cor. NE Sec. 27-4-3.. Rig.

BAKER-BURCH CEMENT FLOAT-SHOES

No Iron in the Hole When You Drill Out With This Float-Shoe!



The Baker-Burch Cement Float-Shoe is a plain casing shoe with a concrete, guide-shaped plug, containing a composition ball check valve and seat.

Easier to Drill Out

The cement plug is much easier drilled out than cast iron. With the old type of cast iron float and guide, drilling out was always quite a job because the cement reinforced the cast iron a great deal. It was often so hard to drill out that the vibration wrecked the cement job.

No Iron in the Hole

The well is left free and clear of any iron which would interfere with further drilling and coring operations—especially coring right under the shoe.

Strong Wash-Down Action

A strong washing action can be produced because the four holes in the plug act the same as the nozzle on a hose.

Safe and Dependable

The Baker-Burch Cement Float-Shoe will not fracture or shatter while guiding a string of casing to bottom, nor will it crush when set on bottom. The real efficiency of this float shoe is proven by the hundreds of successful jobs where wells from 6,000 to 8,000 feet are common.

Manufactured Under Patents

No. 1035674
No. 1491915
No. 1561768
No. 1603447

These patents, together with other patents about to issue, give thorough patent protection on this tool and make it exclusively a Baker product.

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WILDCATTING CAMPAIGN PLANS FOR YEAR 1929

(Continued from Page 199)

holdings at East Hackberry. The Texas Company has been granted the exclusive rights on these domes and has agreed to drill a minimum of four tests on each of the nine domes and two at East Hackberry.

Not including East Hackberry, all these domes are in entirely virgin territory along the Gulf Coast, all being in bays, lakes or other waterways immediately adjacent to the Gulf. All except one, Calcasieu Lake, southern Cameron Parish, are in Terrebone and La Fourche Parishes.

Seek Extensions of Sorrento

Gulf Refining Co. is conducting a steady drilling program on its Sorrento Dome, Ascension Parish, the first oil field east of the Mississippi River, and probably will keep one or more rigs active wildcatting on and around this dome. It was the opening of this field last February which really started the intensive geophysical exploration in southeastern Louisiana.

With the opening of 1929 there were prospects of opening production on the new Roanoke Dome of Jefferson Davis Parish recently discovered by Vacuum Oil Co. That company's first test encountered a good showing at 4,188-4,200 feet and at this writing is waiting to test. Shell Petroleum Corp. is keeping two rigs running at Black Bayou, Cameron Parish, and one at White Castle, Iberville Parish.

Deeply Seated Domes

New domes discovered on the Texas side of the Coastal district were nearly all very deeply seated, according to indications of geophysical instruments. The drilling on these will be of importance in view of the fact that the Texas Coast has been considered as having been fairly well checked and it was not thought likely that there would be any future drilling or wildcatting except around some of the untested sectors of the old domes. These new domes now promise to break the monotony of the continuous operating on the old domes. The new domes are in virtually every county in southeastern Texas and should make an unusually interesting year from a wildcat development standpoint.

Even off salt domes, a fairly interesting wildcatting year is anticipated. Considerable leasing has been going on around structures and other formations indicated in Colorado, Austin, Wharton, Matagorda and other counties to the west of the main salt dome district. This leasing probably will bear fruit in the form of actual drilling throughout that territory. Some prospecting was done during 1928 and at times operations were very active and it is not unlikely that there will be revivals of this during 1929.

Taking it all in all, the year 1929 promises to be an active and far reaching one for the wildcatter, not from the competitive drilling angle, but from a systematic and conservative exploration for new oil in every county and parish on the Gulf Coast.

Southeastern Mid-Continent

With the start carried over from the latter part of 1928 the new year will probably witness a protracted campaign of wildcatting in southeastern Arkansas and northeastern Mississippi. Upon the outcome of the four wells now drilling depends whether the Zwolle district of Sabine Parish, Louisiana, where R. L. Gray completed a 50-bbl. well during the closing weeks of 1928 will receive a protracted play. Northern Mississippi, and perhaps the Coastal counties of that State are also likely to show some activity, also those three southeastern counties of Alabama, in which the Hatchitigbee anticline is located. There will undoubtedly be the usual amount of prospecting in those parishes and counties where there are already producing fields and, finally that species of wildcatting which comes under the head of deep drilling—trying for lower producing strata in proven areas on the theory "once on structure always on structure."

The campaign in Northeast Louisiana will probably center around East Carroll Parish and Morehouse Parish prompted by the Palmer Corp.'s 51,000,000-foot gas well in the former and encouraging symptoms of commercial oil in Morehouse. Tensas and Catahoula Parishes further south may also prove active hunting ground on the strength of showings obtained in two or three 3,000 to 3,500-foot wells completed during 1928.

Geophysical Work in Arkansas

The forecast for southeastern Arkansas—Bradley, Calhoun, Ashley, Chicot, Drew, etc., is predicated almost entirely upon leasing activities and geophysical surveys in which numerous of the major companies are and have been active. So far, the dozen or so wells that have been completed have not revealed much of promise. If a wildcat in Section 25-15-18, Ouachita County, about 6 miles west of Louann light oil production in Smackover pans out, as a show in the first hole indicates, that part of the county is bound to become one of the active spots in the State. This well, McDonald Brothers' No. 1 Wilson, filled four fourbles on drill stem test with heavy oil from 6 feet of sand, total depth 2,821 feet but was junked when the testing tool stuck and the drill stem twisted off at 2,200 feet. Second hole was drilled 50 feet north to 2,808 feet where it is again threatened with being junked by lost tools.

Although the Gay well in Sabine Parish, Louisiana, is unquestionably a commercial well, flowing more now than it did when first brought in, operators remain rather skeptical because of the history of Pleasant Hill, 20 miles north, and the trail of holes abandoned at all depths left by wildcatters who have played that part of the parish for the last 10 or 15 years. Should the four wells now drilling near Gay's success be equally as good or even less, the story will be entirely different.

Mississippi and Alabama

Northern Mississippi is getting a good play in leasing activities with the majors exhibiting considerable interest but only three of them doing any actual drilling. Two new wells are getting under way in the vicinity of Amory in Monroe County where the first commercial wel of any sort in the State was completed in the fall of 1926 and another, which later went to water on account of leaky casing, was completed during 1927.

The Hatchitigbee anticline in southwestern Alabama got a tremendous leasing play during the latter part of 1928, over 500,000 acres being blocked in 10-year commercial leases by half a dozen or so big companies plus a few individuals. Two wells are reported as having started in Washington County on this anticline but their present status is not known.

Success attending drilling to 3,900 feet in Pine Island, Louisiana, and to 4,600 feet in Cotton Valley in the same State, prompted a score or more tests to 4,000 feet and below scattered all through the North Louisiana parishes, to say nothing of others in proven and wildcat areas to 3,500 to 4,000 feet. Haynesville and Homer each have one of the former under way, Haynesville's being about 100 feet from where a previous well to 4,200-300 feet got production, and two wildcats in Claiborne also are scheduled for deeper horizons. Nevada County Field has a similar test under way by Humble Oil & Refining Co.

A further continuation of the wildcatting campaign that continued throughout North Louisiana in spite of a more or less inimical severance tax adopted during the year which raised the levy on both oil and gas, is prompted mainly, however, by the continually dwindling production of existing pools. And this applies with equal force to Arkansas where the legislature, now in session, is expected to have an increased severance tax proposal before it, and where production has dwindled with alarming rapidity during the last six or eight months in spite of Champagnolle's driving revival.

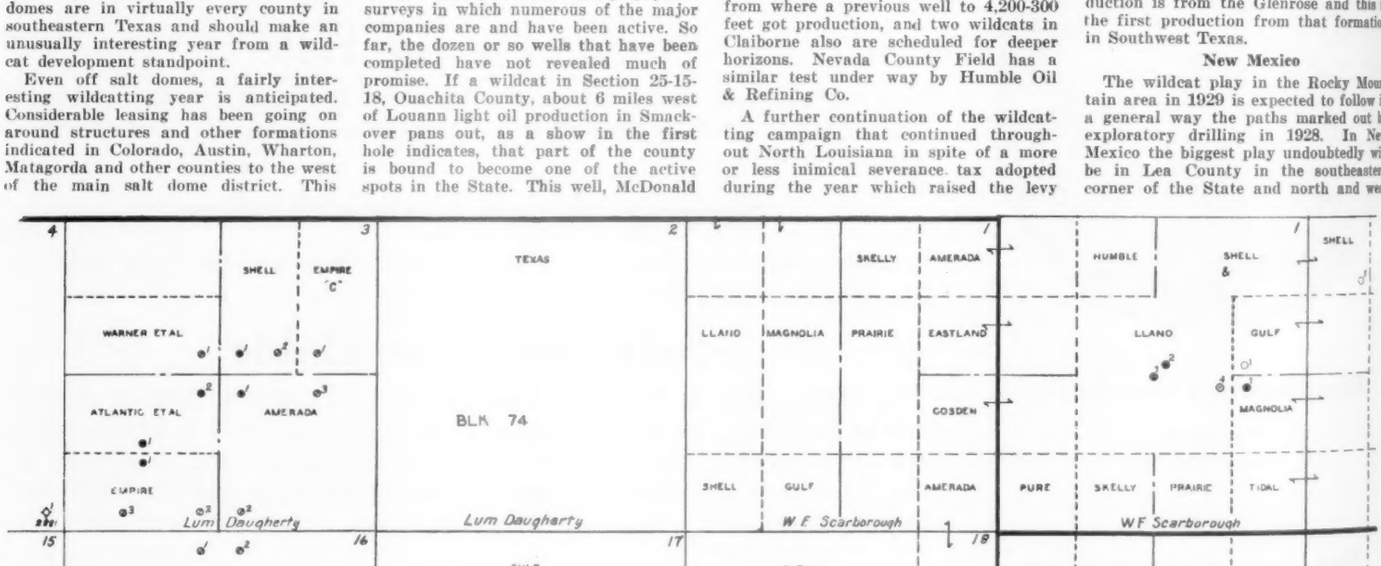
Southwest Texas

In 1929 the wildcatting in Southwest Texas is going to take some new turn if nothing happens to prevent. There is a stretch of counties between the Balcones fault zone on the north and the Gulf Coast counties on the south that has been given much attention by majors and independents. The strip is about two counties wide and has been referred to in The Oil and Gas Journal before. The Sun Oil Co. discovery at Gay Hill in Washington County and the Humble Valley Oil Corp. Pool at Raccoon Bend in Austin County are at the northeast end of the strip which includes Fayette, Colorado, Gonzales, Lavaca, Wilson, Karnes, Goliad, DeWitt, Bee and Live Oak Counties. A world of mapping and leasing has been going on in that territory. Several major companies are making new ownership maps of the counties and are studying them carefully. The coast counties from Refugio southwest to Kleberg County and the Kingsville Field will still continue to get attention as will also the Balcones fault.

One of the important spots that will keep in the attention of the industry is Maverick County where late in the year Rycade Oil Corp.'s No. 3 Sullivan had 2,000,000 feet of gas spraying oil at 5,125 feet. This well is 7 miles northwest of the same company's No. 1 Chittim which a couple of years ago had 2,000,000 feet of wet gas at 5,515 feet and deepened somewhat increased to 28,900,000 feet of gas gauged and an estimated 75 to 100 bbls. of very high gravity oil. It is believed the sands in the two wells are the same and that there is a structure there 45 miles long and one of the most important in the country. Rycade has leases of some 200,000 acres. The production is from the Glenrose and this is the first production from that formation in Southwest Texas.

New Mexico

The wildcat play in the Rocky Mountain area in 1929 is expected to follow in a general way the paths marked out by exploratory drilling in 1928. In New Mexico the biggest play undoubtedly will be in Lea County in the southeastern corner of the State and north and west



Plat of the Leek and Llano Pools in Northern Winkler County, Texas. Both pools are in the early stages of development. The Llano Pool seems to have a better outlook as a result of Magnolia Petroleum Co.'s completion in that area.

the Texas boundary. The indications the existence of one or several pools that area have been developed sufficiently in the wildcats already drilled to inspire in the operators the belief that the problem from now on will be to locate the productive highs. Owing to the nature of the terrain, surface geology is difficult to work out. Geophysical instruments and pit digging have been employed with partial success, but a number of tests will have to be drilled to deep horizons in order to determine the detail mapping of the structural highs. The drilling campaigns of 1928 and previous years appear to be narrowing down gradually the favorable territory for prospecting and the outlook for the opening of some important new pools in 1929 appears nearer realization than for some time. From Lea County the wildcatting is expected to extend northward in Chaves, De Baca, Roosevelt and Curry Counties and to continue westward into Eddy County. In the northwestern part of the State there does not appear to be any definite trend of prospecting for this year other than to continue drilling the numerous structures in San Juan and McKinley Counties which has been conducted the past year mostly by independent operators. One deep test to the Pennsylvanian horizons on the Rattlesnake Dome, being drilled by the Continental Oil Co., is due for completion in 1929. Upon the outcome will depend other tests to that horizon on the proven structures in the Dakota formation. Already this test is so deep that it will discourage similar wildcatting by other than the strongest companies. In the meantime, the shallower sands with prospects for small commercial wells will be the objectives of most of the wildcats.

In Colorado

In Colorado, the wildcat play in 1929 will most likely be confined principally to the northwestern part of the State where there are a number of known structures, some of which have been drilled to the Dakota and others which have not been tested and to the eastern and southeastern parts of the State. The Morrison and Sundance sands, which lie below the Dakota series, have been proven productive on the Moffat and Iles Domes in the northwestern area in the past two years. On the Iles Dome, the water in the Dakota, which formation was formerly the main objective, did not condemn the lower horizons and this makes structures never tested below the Dakota attractive. The possibilities of the Tertiary formation in that area also will receive attention and several tests of that horizon are now drilling in Moffat and Rio Blanco Counties and across the line in Utah. In the eastern and southeastern parts of the State the Kansas play has had its bearing on prospects across the line in Colorado and several of the major companies have been making geophysical examinations and acquiring holdings. While no drilling plans have been announced, it is almost certain that one or more tests will be drilled about midway between the Fort Collins-Wellington producing pool in Larimer County, and the Kansas line, while a deep test now drilling in Yuma County will influence prospecting in that territory. While several wildcats drilled in southeastern Colorado to Pennsylvanian horizons have not yielded any producing wells, the cuttings from these wells have given a better understanding of geological conditions and the operators still look upon the locality as favorable ground for prospecting. In fact, extensive acreage is not only being held in that territory but additional acreage gradually is being acquired.

Wildcatting in Wyoming

The principal wildcat plays in Wyoming will be in the Big Horn Basin in the north central part of the State where several structures have been proven in the past year or two, along the Utah-Idaho line in western and southwestern Wyoming, in Fremont County, in the central western part of the State, and in the tier of counties along the southern boundary. The Big Horn Basin structures which are in line for testing mostly are black oil domes, though there are several tests for light oil in the Dakota either under way or projected. The Prairie Oil & Gas Co. is drilling one well to the Deadwood formation on Little Sheep Mountain in Big Horn County. The Deadwood sand correlates to some extent with the Wilcox sand of the Mid-Continent and is known to underly many structures within reach of the drill. A favorable development in that horizon would open the way for prospecting over an immense area extending into Montana and south into Fremont County and for some distance eastward. In the western and southwestern districts the principal activity will be in Sublet, Lincoln and Uinta Counties where the LaBarge Field, now running around 2,000 bbls. a day, furnishes the principal evidence of the accumulation of oil in closed structures. In southern Sweetwater County, the drilling is in search of oil in the Tertiary formation. In Carbon County, several structures are being tested to horizons below those now producing oil or gas from the Dakota series, these including the Morrison and Sundance sands, and in some instances, the Pennsylvanian.

Utah wildcatting will depend in a large measure upon several Tertiary tests in the eastern central part of the State, two of which are under way, and the outcome of flank wells being drilled in Grand County to test out the theory that structures in that territory which contain large salt deposits are salt domes.

Montana Wildcats

No slackening of wildcat work in Montana was to be noted at the close of 1928, though since the development of the Pondera and Bannatyne Fields only one wildcat in the State has given definite promise of commercial production.

This one well is the Ohio Oil Co.'s test on the Dry Creek structure in the southern part of the State, Section 11-7-21. The well has been fishing for two months or more at a depth of 4,558 feet, after striking an 11,000,000-foot flow of wet gas. The hole has also shown oil, and it is generally conceded that it will make a commercial gasser if not an oil producer, when it is completed. The Ohio is already considering piping gas from this well to connect with the Elk Basin-Billings line.

The Western Natural Gas Co.'s No. 1 Pritchard, in the Sweetgrass Hills, which looked especially promising last summer, was abandoned after failure to find commercial production; but the company is drilling another hole in this general locality and hopes to find something better than a showing. The Michener well east of Dutton, a promising operation, also failed to produce. Another test is being drilled on the Bears Den structure in the Sweetgrass Hills by the Bears Den Oil Co. and the Sunburst Oil & Refining Co., previous tests on this structure having indicated the existence of gas in commercial quantities.

A small gas production has been developed by the Big Horn Oil & Gas Development Co. near Hardin in the southern part of the State, and the operating company hopes to develop sufficient gas supply to provide the city of Hardin with fuel.

Efforts have been made to extend the Pondera and Bannatyne Fields through drilling beyond the known limits of production in these districts, but so far no new territory has been proven. Further tests are being made of the Healy Springs and Pendroy structures, and two wells are being drilled in the South Pondera district.

In Central Montana

In the central part of the State, Carroll Brothers are testing the Cedar Dome just east of Cat Creek. In the same part of the State, the Melton corporation well near Winifred is still drilling and the Demont Oil Co. test on Brush Creek near Lewistown was shut down at last report after finding showings below the Ellis-Madison contact. The Minnesota Flatwillow Oil Co. started another test of the Flatwillow structure in Township 15-25, where oil showings

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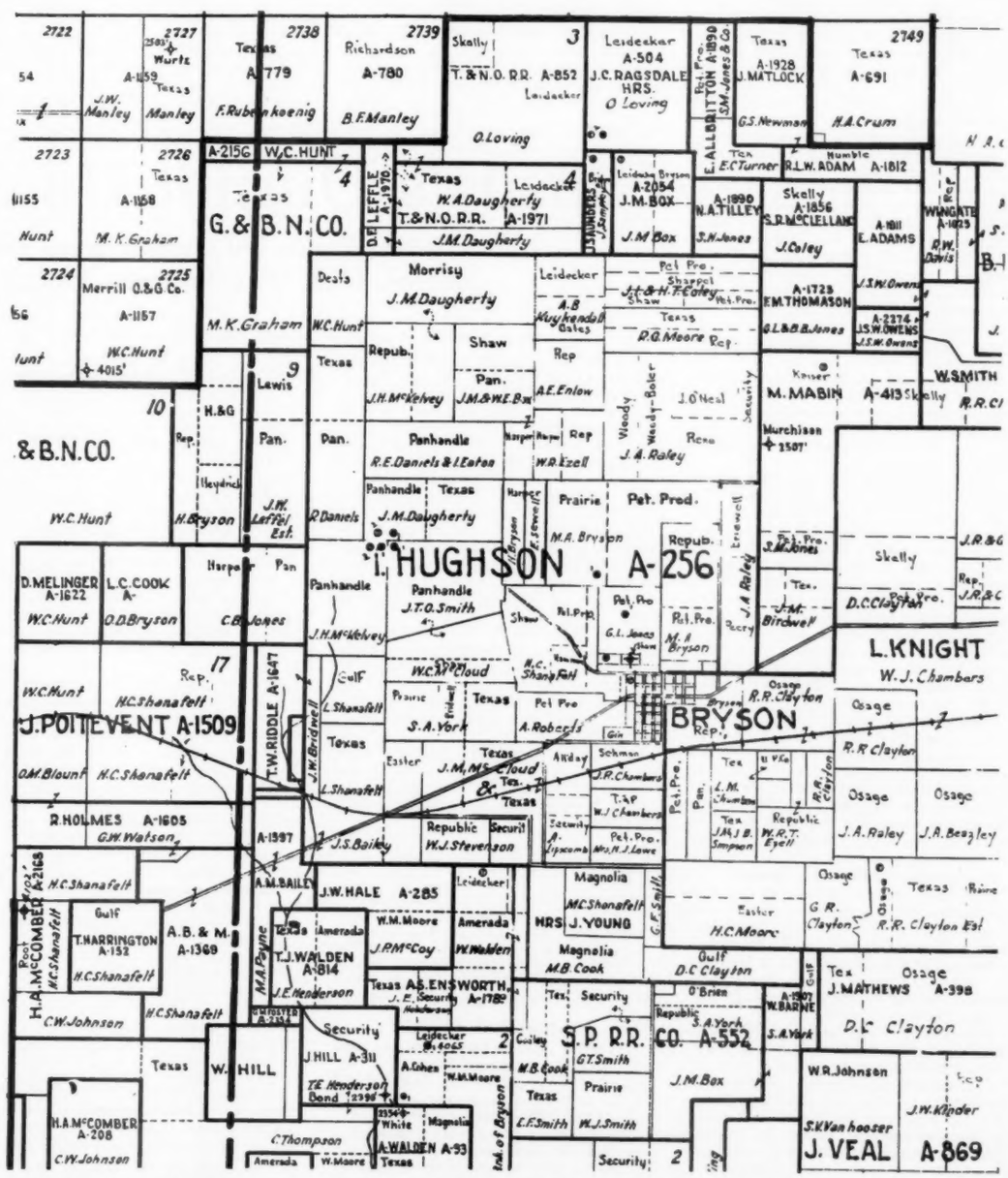

Plat showing ownerships and development in the Bryson section of the Jack area in Texas. The area promises to be one of the most active in the Wichita Falls district during early 1929. Map courtesy of Heydrick Mapping Co., Wichita Falls.

Oil in Central and Western Michigan

Muskegon Field Developed in 1928 and Isabella-Midland Area Is Opened. Saginaw Settles Down

By Special Correspondent

Michigan, which for many years was believed to be among the hopeless states as a producer of oil notwithstanding early-day showing of oil near Dundee, Monroe County, produced more crude last year than in 1927 when the Saginaw Field was going at its best. Its record in 1928 was 632,500 bbls., as against 436,100 bbls. in 1927 and 103,000 bbls. in 1926, when the first commercial production was produced.

The features of 1928 were the development of the Muskegon Field in Muskegon County and the opening of a pool near the Isabell-Midland county line, which is yet too young to make it possible to venture any safe predictions. The Saginaw Field, a town lot proposition, has long since dropped back into the settled pumping stage, and the only test of interest is that of the Saginaw Prospecting Co. on city-owned land in the northern end of Saginaw which had reached a total depth of 3,570 feet at the close of the year. The well has had small showings of oil at various levels and a show of oil and gas in the Monroe at 3,560 feet.

The Muskegon Field was opened in December, 1927, but its development, of course, has been within the past year.

Oil was first struck in paying quantities near Muskegon, on December 9, 1927, and the well was drilled in as the initial gusher in what was to become the Muskegon Field on December 15, 1927.

The discovery well was that drilled by the Muskegon Oil Corp. upon the property of Charles Reeths, NW NW Section 9-10-16, Muskegon Township. It was completed on December 22, 1927, when it flowed 340 bbls. during the first 24 hours from the upper Traverse formation at 1,658 feet.

The discovery of oil and gas in the Muskegon-Reeths well followed the disappointment of completing the first well in a program of five tests as a dry hole not only in the Traverse but also in the Dundee formation.

This first well was that drilled by the Muskegon Oil Corp. on the property of Bert Hazekamp, SW NW Section 28, just on the outskirts of the city of Muskegon. It was dry to a depth of 2,390 feet although it was shot for a small show of oil in the Dundee formation.

The log of this well, however, combined with the imperfect logs of three old salt wells drilled within the city limits on a line extending northeast and southwest along the south shore of Muskegon Lake proved very valuable in the location of the discovery well.

The record of this well and all other records available were turned over to H. D. Crider, geologist of the Dixie Oil Co., subsidiary of the Standard Oil Co. of Indiana. Basing his computations on the meager information at hand, Mr. Crider located the discovery well and made an important place for himself on the staff of the Dixie company.

Daniloff Played His Hunch

Yet while great credit is due Mr. Crider for the location of the discovery well, it was the faith of a Bulgarian immigrant tailor, Stanley Daniloff, of Muskegon, which brought Muskegon the oil field and an industry which today ranks with some of the largest established industries of the Muskegon district.

For it was Stanley Daniloff who conceived the idea about 8 years ago that there was oil in paying quantities beneath the area near Muskegon. Seepages on his farm in Section 5 of Muskegon Township led him to study the old records of the state geological survey at Lansing with the result that he was convinced that there was oil beneath Muskegon.

It was the record of those three old wells drilled for salt nearly 50 years ago, within the present city limits of Muskegon, that supported his belief that there was oil here. For in each of these salt wells oil was encountered. No attention was paid to the oil in those days as it was salt the drillers sought.

The oil now stands to a depth of several hundred feet down from the top of the casing in each of these old wells and one, near the Peoples Milling Co., has been producing several barrels of oil a month for the past 30 years. The other two have been opened during the past year and found to contain oil on top of a column of water thus filling the pipe to the level of the earth.

A Persistent Believer

Mr. Daniloff had faith. This he proved when four years after he had originally come to the conclusion that there was oil near Muskegon he made a determined effort to convince his brother-in-law, Carl E. Myler, of Joliet, Ill., that he was right.

It took more than a year to accomplish this task after which the two brothers-in-law started out to organize a company to drill several test wells near Muskegon. Mr. Daniloff walked the streets of Muskegon for many weeks selling small blocks of stock in the Muskegon Oil Corp., capitalized at $100,000 to drill five test wells.

In the meantime he had been acquiring leases as well throughout Muskegon county and especially in certain vicinities which were believed to have better prospects than others. And while development of the Muskegon Field has been progressing rapidly for a year now since the first oil was struck there are several of these areas in which the most leases are held that have not yet been explored.

The Muskegon Oil Corp. finally was organized with Daniloff as president and treasurer, his brother-in-law, Carl E. Myler, as vice president, and Willard G. Turner, Jr., of Muskegon, as secretary.

Soon after the organization of the company was announced and the first well was started by the Gray Well Drilling Co., of Milwaukee, the brothers-in-law formed the Muskegon Development Co. specifically to take leases and act as the land holding company associated with the oil corporation, which was to do the actual drilling.

About $20,000 of the total of $79,000 of stock in the Muskegon Oil Corp. subscribed and paid in cash was sunk in the first well on the Hazekamp property. This certainly was a discouragement to the hopes of Muskegon's prospective oilmen.

But they did not propose to give up until all of their money had been spent on as many test wells as could be drilled. For these men had faith that there was oil near Muskegon.

When they hit the first well there was doubt as to how long it would stand up and there was skepticism as to the possibilities of the development of a paying oil field on all sides. Some of this doubt was engendered by the fact that the oil had been struck in the Traverse limestone, known to be a fickle formation, and partly due to the unfortunate experience of operators in the Saginaw Field.

The old discovery well stopped flowing about December 8, after producing but 5 bbls. a day for several months, but it will be cleaned out and placed on the pump to recover all of the oil possible. It has been one of the best wells in the upper Traverse pay sands paying for

(Continued on Page 222)

Canada's Output Up 32 Per Cent

Highest Crude Oil Output Since 1907 Was Record of 1928. Far Western Fields Responsible

By Victor Lauriston
Staff Correspondent, Canadian Fields

With official figures available for the greater part of the year but still incomplete, indications are that Canada's crude oil production for 1928 will reach a total of around 630,000 bbls. This is the highest figure attained since 1907, when production reached 788,872 bbls. Canada's largest annual crude oil production, so far as definite figures are available, was 829,104 bbls. in 1894.

The 1927 production amounted to 476,591 bbls. for the entire Dominion, so that the 1928 figures represent an increase of 153,409 bbls., or 32 per cent of the production of the entire Dominion in 1927.

The 1928 production came from three provinces. New Brunswick, where there is a small crude oil recovery incident to the natural gas production, has not reported definite totals; but the year's production should run around 20,000 bbls., or perhaps more.

In Ontario, the slowly declining shallow fields in the western part of the province recorded the following detailed figures for the first six months ending June 30:

	Bbls.	Gals
Petrolia	31,276	17
Oil Springs	16,915	2
Bothwell	12,602	4
Thamesville	859	17
Mosa	3,489	33
Dover West	284	..
Total	65,427	4

Incomplete figures indicate for the last six months a production around 62,000 bbls., making 127,427 bbls. for the entire year, comparing with 140,410 bbls. in 1927.

Production of Alberta

Figures of Alberta production are complete up to the end of November, but subject to minor revisions. Most of the Alberta production came from the Turner Valley Field. This Turner Valley production is partly crude naphtha, condensed from wet gas, and partly light crude oil. The light crude is very close in grading to gasoline, and the crude naphtha is an exceedingly high test product, around 73 Baume. Figures for the year, with the December production estimated, indicate a total of 373,841 bbls. of crude naphtha, while the light crude production will amount to around 102,562 bbls., making a total of 476,403 bbls. for the Turner Valley Field.

To this can be added a small production of heavy crude from the Wainwright Field. The production for the year will aggregate around 7,585 bbls, bringing the Alberta total for 1928 to 483,988 bbls.

Adding the totals of 20,000 bbls. for the New Brunswick and 127,427 bbls. for Ontario gives a grand total for the Dominion of 631,415 bbls. This figure, which is subject to revision, compares favorably with the total of 476,591 bbls. for 1927.

The production of the Alberta fields for 1928 was fairly steady, though fluctuations were occasioned by the intermittent freezing of some of the Turner Valley deep producers. In the Turner Valley the light producers from the Dakota sand decline rapidly. In the Dalhousie and Home sands the light crude production is better maintained; while, except from freezing, crude naphtha producers in the deep lime hold up remarkably well. The following figures show the monthly production for the Alberta fields in 1928:

	Turner Valley Crude naphtha	Turner Valley Light crude	Wainwright Heavy crude
January	27,636	5,598	494
February	27,103	5,441	611
March	32,485	5,414	942
April	29,949	4,825	972
May	36,705	6,771	832
June	36,268	10,331	841
July	36,522	8,709	770
August	39,351	6,979	121
September	32,752	6,905	179
October	26,616	5,752	423
November	22,844	815	*400
December	*25,630	*19,012	*1,000
Total	373,841	102,562	7,585

*Estimated.

The upturn in the last month of the year is based on the coming into production in the Turner Valley Field of Okalta Oils' No. 1 gusher, a deep lime producer whose output has, so far, been of graded light crude. In the Wainwright Field, Wainwell Oils' No. 1 was reported in steady production the latter part of December, and making somewhat more than the estimated 360 bbls. a day, in which event the month's production for that area should considerably exceed the estimate.

For the coming year, the outlook indicates increased production in Alberta. With the close of the year several tests were drilling near production in the deep lime, and should add their quota to the Turner Valley production early in 1929, while the results secured by Wainwell Oils, Ltd. in two wells have quickened interest in the Wainwright Field. There is a possibility of commercial oil production in Saskatchewan in 1929, though on a small scale.

Ontario drilling operations in 1928 were pretty well confined to the natural gas companies, which were primarily interested in replenishing their gas reserves. In Lambton County, the Union Natural Gas Co. did some new drilling in the Dawn Field, securing a fairly satisfactory production from a number of wells. The same company has been redrilling the oil Tilbury Field, and cleaning out old producing wells there. The Southern Ontario Gas Co. drilled some tests in its Tilbury acreage, and there was little drilling in the old gas fields further east.

A few large gassers were secured, two in the Tilbury Field and one in Dawn Township; the rest were average producers, around 100,000 feet a day or less. Operations by the natural gas companies contributed practically nothing to the crude oil supply.

Wildcatting in Ontario

There was very little wildcatting done during the year in Ontario. In Dover Township, Kent County, the Ajax Oil & Gas Co. drilled three wells to the Trenton limestone horizon. No. 1 produced some gas and a little oil; results of No. 2 are still undetermined, owing

to tubing trouble; No. 3 reports a fair gas production and would indicate possibilities of a field a considerable distance east of the original Trenton producers in Dover. The Ajax Oil & Gas Co. will likely test out this easterly trend of the field in 1929. In Moore Township, Lambton County, a wildcat test by Leo Wilson was unproductive in the upper formations, and is being continued into the Trenton limestone. In Vaughn Township, near Toronto, a deep test drilled by the Henderson Syndicate got neither oil nor gas, but is reported to have encountered radium water.

In Nova Scotia, some geological work was carried on in 1928 by Imperial Oil, Ltd. in the Minudie district, and this work will be continued in 1929, with possibilities that drilling may be undertaken later in the year.

It would be too much to say that the possibilities of oil even in the much-drilled Ontario fields are exhausted. Even the comparatively shallow Onondaga limestone may still develop isolated fields; the Guelph-Niagara and Salina formations are untested over a wide area; and the Trenton limestone, underlying the entire western section of the province, has been tested only at isolated points. This deeper drilling, is, however, not a poor man's game; and Ontario men able to finance such operations are attracted by the mining industry of northern Ontario. The natural gas companies, on the other hand, are to some extent deterred from wildcatting by the fact that their best results in recent years have been secured by redrilling old fields or gradually extending proven gas areas. New oil fields may yet be found in western Ontario, but their discovery will, in view of these conditions, be a slow process.

James Bay District a Prospect

The coming year, will, however, see actual development work carried on in the James Bay district, where geological surveys have indicated prospects of oil to be good. The formations on the northward dip toward James Bay are somewhat similar to those of southwestern Ontario, and geological investigation has indicated the possibility of limited shallow fields similar to those of Petrolia and Oil Springs. Transportation conditions are difficult, but the Temiskaming & Northern Ontario Railway is being steadily pushed closer to James Bay. Owing to the failure of private enterprise to undertake development work, the Ontario Mines Department will in 1929 undertake drilling operations to test the oil possibilities of the more promising sections of the James Bay area.

Development in Western Canada

While the results of the limited operations in eastern Canada in 1928 were largely negative, in western Canada drilling was more active than in any previous year, and fairly satisfactory results were secured.

Interest for the greater part of the year centered in the Turner Valley Field, whose production for 1928 exceeded the entire Dominion production in 1927. In this field light crude production is secured from two horizons in the Dakota-Klairmore formation, and from two deeper horizons—the Home and Dalhousie sands in the Fernie shales. The deep lime (Madison) formation produces wet gas, which condenses crude naphtha or, in some cases, a light crude oil that is very close to crude naphtha.

At the close of 1927, the Turner Valley Field had seven deep producers with an estimated potential production of 1,005 bbls. a day. There were also five shallow (light crude) producers with an estimated daily production, all told, of 230 bbls. Since then some of these light crude producers have petered out and been drilled deeper; and a number of wells in both categories have been brought into new production.

Systematic Drilling Campaign

In 1929 Royalite Oil Co. and the other Imperial Oil, Ltd., subsidiaries are expected to extend their drilling operations. A systematic development program has been mapped out which involves the continuous use of the dozen or more drilling outfits now in the field. Several new tests by independent companies are in prospect. The foregoing list does not include a number of tests located at various times on which no actual work has ever been done.

In the Wainwright Field

East central Alberta in the past year has seen a marked revival of interest in the Wainwright Field. This has been due to the operations of Wainwell Oils', Ltd., of Toronto. This company early in the year took over the unfinished test of the Interior Oil Co. close to Wainwright, secured a production estimated 360 bbls. a day, and in so doing proved an important and considerable extension to the existing Wainwright Field. This company has since started two additional tests, one of which is already in production; and has completed a refinery at Wainwright especially equipped to handle the Wainwright heavy crudes. This plant is now in operation and is reported to be taking the available Wainwright production.

Results secured in Wainwells' No. 1 led to renewed activity by several other companies. In the meantime Hargal Oils, Ltd., of Vancouver, British Columbia, took over the greater part of the assets of British Petroleums, Ltd., the pioneer company in the Wainwright Field. In addition to Wainwell Oils' No. 1, the field has two other wells definitely producing, British Petroleums' No. 3-B and Edmonton Wainwright Oils' No. 1. Each has a reputed production of 40 bbls. a day, but it is only in the last few weeks that they have been on a steady producing basis. Several other wells in the field have got the producing horizon at various times, but none of them is actually delivering crude oil, and their real status is rather uncertain. It is understood that water has caused trouble in some of the older producing wells.

Two other east central Alberta areas received some attention in 1928. In the Viking gas field, Northwest Utilities, Ltd., of Edmonton drilled two gassers to maintain its reserves. In this field also the Hudson's Bay-Marland Oil Co. started its first actual drilling test in Canada, and, after getting a large gas production in the Viking sand, is testing the lower formations.

East of the Wainwright Field, Meridian Oils, Ltd., drilling in LSD 1, Section 16-45-1w4, on the Ribstone-Blackfoot structure encountered a large gas flow at 1,820 feet, estimated 20,000,000 feet a day, and opening another large gas field for Alberta. London-Ribstone Oils, drilling in LSD 14, Section 10-43-3w4, encountered oil showings around 2,400 feet, which failed to develop commercial production; the test is being carried deeper. Ribstone Oils' No. 1, LSD 1, Section 1-46-1w4 was abandoned at 2,056 feet, and No. 2, LSD 5, Section 2-47-1w4, is drilling at 1,080 feet.

Work in Northern Alberta

There was little activity in northern Alberta. In the Athabaska district Peter and Paul Von Weymarn of Oslo, Norway, drilled a test on the Clearwater River to 500 feet. Work will resume next spring, when additional drilling will be undertaken. In the Lesser Slave Lake district a second test by International Oils was abandoned at 3,105 feet, and work will be started next spring on a third location.

Elsewhere in Alberta, a number of wildcat tests more or less active in 1927 failed to resume in 1928. Some new wildcat tests were, however, started. Following the successful development of the Turner Valley Field, similar areas in the Rocky Mountain foothills are being given attention. West of Calgary, Imperial Oil, Ltd., is drilling its No. 2 test in the Jumping Pound Field, after abandoning No. 1 at 5,585 feet. A little nearer Calgary the Sarcee Oil & Gas Co. is core-drilling on the Sarcee Reserve.

Near De Winton the Marquis of Anglesey has carried Lakeview No. 1 test to 4,500 feet, where it is shut down till spring. South of the Turner Valley in the Highwood district Imperial Oil's Highwood No. 1 is drilling at 3,814 feet, while on the Rickert structure the Turner-Wright Co. is rigging up for a test.

In the Moose Mountain district, Signal Hill Oil Co.'s No. 2 test has resumed after a long shut-down and is drilling at 2,050 feet. Three tests were more or less active on the Morley Reserve; of these the Wabash Oils got the Madison lime at a phenomenally high point, but after drilling nearly 600 feet into that formation had failed to develop satisfactory production. On the Sinclair structure the Warner Oil Co. has a test just nicely under way.

Deep drilling has been carried on in the Pincher Creek area, near the International boundary, by Alberta Gas & Fuel Co., a Henry L. Doherty subsidiary. Two tests, one at 4,605 feet and the other at 3,310 feet, have been already abandoned owing to drilling difficulties, but a third is drilling below 2,000 feet, and a fourth is being located.

The border areas of southern Alberta have received considerable attention. At the beginning of the year, interest centered in the Skiff Field, where Devenish Petroleums had got a heavy crude production in No. 1 well and Imperial Oil, Ltd., had undertaken to continue development. No. 2 well finished dry, while at the close of the year No. 3 was drilling around 823 feet.

On the other hand, Eagle Butte Oil Co., drilling on the Cypress Hills structure near Medicine Hat, opened yet another gas field with a gasser, as yet unmeasured, but reputed to be making 40,000,000 feet a day. Elsewhere no commercial production was secured, though Range Oil & Gas Co., having arranged to market the production of the Rogers-Imperial gasser in Montana, has started a second test on the same structure. A test by the Canadian Western Natural Gas Co. near Brooks developed an additional gas supply for that town.

Other border wildcats were scattered over a considerable area. On the Beaver Dome, Madison Oils has a test drilling at 731 feet. Lethalta Oils' recently abandoned its Chin Coulee test at 2,300 feet, and Gas Production & Transportation, Ltd., of Calgary went around 4,100 feet with a deep test near Warner before quitting. In the Milk River district, Capitol Oil & Gas Co. has a test shut down for the winter at 660 feet, while Commonwealth Petroleums, after extensive core drilling, is down 413 feet with a commercial test. The same company is core drilling the Blood Reserve area. West of Coutts, Ko-Top Oils of Calgary is rigging up for a test of the Red Coulee structure. Ontario-Alberta Development Co. has a test down 1,780 feet near Suffield; while in the Wildcat Hills the Frontier Development Co. is down 860 feet.

In Manitoba

Manitoba, in the past year, has been devoid of drilling activity. In Saskatchewan, on the other hand, there have been half a dozen tests more or less active. Citizens Oil & Gas Co. of Saskatoon is drilling around 3,000 feet on Unity Valley No. 2 test near Vera; while the Rosetown Syndicate's Herschel No. 1 test in LSD 13, Section 4-31-17w3 was below 2,000 feet with a good gas production and strong oil indications when it shut down for the winter. The coming year will likely see a test for gas drilled by the Canadian Western Natural Gas Co. near Hanley, as well as the completion of some of the tests now in progress.

British Columbia

British Columbia drilling has been limited to a couple of deep tests in the Sage Creek district, where light oil showings have been met and drilling is being continued for commercial production.

Failure in Far East

In the far East, drilling operations by the Henry L. Doherty interests in Prince Edward Island were definitely abandoned, after the second of two deep tests had been carried nearly 6,000 feet without securing commercial production.

WILDCATTING CAMPAIGN PLANS FOR YEAR 1929

(Continued from Page 213)

were reported in a well drilled several years ago.

The California Co. is drilling an interesting test on the Ringling structure in the foothills of the Belt Mountains. This well will be carried to the Devonian formation for a thorough test. A well was drilled in this vicinity several years ago by the Mid-Northern Oil Co.

Several tests are being drilled in the vicinity of Great Falls. The U. S. Petroleum Co. is drilling 3 miles north of the city, the Reynolds Drilling Co. is putting down a test on the McIvor ranch near the city limits, and the Lone Star Oil Co. is drilling on the outskirts of Great Falls.

The O'Haire Syndicate abandoned a well on the Fedland Dome, 60 miles north of Great Falls, after striking sulphur water at 1,818 feet.

12,000-Acre Block

The Texas Pacific Coal & Oil Co. has leased 12,000 acres on the Mud Creek Dome in Teton County, 30 miles from Great Falls. Location for the first test has been made on Section 12-22-1. The Emrick sand is expected at 1,000 feet in this locality.

California people started a test on the Goosebill Dome near Fort Benton early in the fall, and this was afterwards taken over by the Cypress Oil Co. There is considerable drilling in this district and showings of oil have been reported at various times. Oil showings were also reported from the Montana Belle Oil Co. well, 12 miles north of Miles City.

Following the completion of a good black oil producer at Frannie, Wyo., close to the Montana line, the White Oil Co. test on the Montana side was taken over for completion by Dave Hills and associates. This well was 2,500 feet deep at last report.

Other wildcats of interest in Montana at this time are the Trapp Syndicate test, 6 miles northeast of Pondera Field, near Conrad; the Williston Oil & Gas Co. test on the Big Sandy structure, Section 12-28-11, 65 miles northeast of Great Falls; the Judith Basin Oil & Gas Co. well on Arrow Creek, Fergus County; the Whitetail Oil Co. well on the Whitetail structure; the Kyle-Montana Oil Co., Inc., test on the Bow and Arrow structure just south of the Bears Den in the Sweetgrass Hills; the Community Drilling Co. well near Wolfe Point, 8 miles from Poplar, where a test was drilled last year with a diamond drill and was lost on account of hole running out; the Eden Oil Co. test south of Great Falls; the Ohio Oil Co. test on the Cherry Ridge structure, Section 3-34-2, Blaine County; and the Shoshone Consolidated Oil Co. test on the Hamilton Coulee structure near Big Timber.

DEVELOPMENT IN BOGGY CREEK IS FEATURE

(Continued from Page 196)

Angelina County the latter part of the year, but these at present are standing. One, however, A. E. Findley's No. 1 Collmorgan, drilled into a gas sand at 900 feet and blew out. The blowout, evidently from a pocket, lasted about an hour and showed no trace of oil or water.

Of particular note was the sharp decrease in total production during the year. The district during 1927 produced a total of 13,162,026 bbls., and in 1928, 8,695,507 bbls., indicating a drop in 1928 of 4,467,519 bbls.

Wells completed during 1928, however, had a greater total initial production than those during 1927, due to several good producers in the Boggy Creek Field. A total of 84 tests were completed, and out of these the 13 producers had a flush flow of 9,519 bbls. Fourteen producing wells were completed during 1927 having a flush production of 4,856 bbls.

NEW KANSAS CITY RATES

The Kansas City Gas Co. has filed a new schedule of rates for gas used in heating. The new schedule will provide a rate of approximately 61 cents a thousand feet for gas used in heating compared with the present rate of about 74 cents, according to Maj. T. J. Strickler of the gas company.

Only those persons who sign contracts for the use of gas for heating purposes will be benefited by the new rates. These will get the cheaper rate if their present gas bill amounts to $6 or $7 a month or more, Major Strickler said.

Automobile Registrations 24,750,000

Gain of Nearly 1,500,000 During 1928. Notable Feature is the Growth of Motorization Abroad. World Total Now 31,000,000

According to the National Chamber of Commerce estimates total production of motor vehicles in the United States and Canada for 1928 amounted to 4,630,000 units. This compares with 3,573,671 in 1927. Production of passenger cars amounted to 4,044,000, against 3,068,018 in 1927, and production of trucks was 586,000 against 487,653. The wholesale value of the passenger cars produced was $2,630,500,000, against $2,269,500,000 in 1927, whereas value of trucks amounted to $415,320,000, against $431,649,521. In addition to the wholesale value of $3,045,820,000 representing manufactured cars and trucks, the industry also accounts for an additional $1,600,000,000, representing replacement parts, tires, accessories and service equipment, so that the total value of wholesale automotive products added close to $5,000,000,000 to the country's production of wealth in 1928.

As a promoter of prosperity, the industry's consumption of other materials ranks high. It is estimated that 85 per cent of the rubber, 60 per cent of the plate glass, 12 per cent of the copper, 15 per cent of the iron and steel and 80 per cent of the gasoline used in the United States is directly consumed by the motor industry. Nearly 300,000,000 pounds of cotton fabric is used in the construction of tires for motor vehicles and 3,600,000 car loads of automotive freight were shipped over the railroads last year.

The following table shows statistics of the industry compiled by Alfred Reeves, general manager of the National Automobile Chamber of Commerce, for 1928 compared with 1927:

Production	
Cars and trucks produced in U. S. and Canada	4,630,000
Cars	4,044,000
Trucks	586,000
Production of closed cars	3,441,600
Per cent of closed cars	85
Wholesale value of cars	$2,630,500,000
Wholesale value of trucks	$415,320,000
Wholesale value of cars and trucks	$3,045,820,000
Tire production in U. S.	78,500,000
Registration	
Motor vehicles registered in U. S.	24,750,000
Cars	21,630,000
Trucks	3,120,000
World registration of motor vehicles	31,725,000
Per cent of world's antomobiles in U. S.	78
Motor vehicle registration on farms	5,450,000
Miles of surfaced highway	615,000
Total miles of highways in U.S.	3,013,584
1928 highway expenditures	$1,500,000,000
Taxes on motor vehicles	$785,386,000
Motor Fuel and Oil	
Gasoline consumption by motor industry	80%
Gasoline used by motor vehicles, 1928 (gals.)	10,860,000,000
Motor oil consumption (gals.)	434,000,000
Truck and Bus Use	
Motor trucks in use	3,120,000
Motor truck owners	2,271,000
Motor buses in use	92,000
Consolidated schools using motor transportation	14,850
Buses used by street railways	9,900
Buses used by steam railroads	1,250
Street railways using motor buses	365
Steam railroads using motor buses	67
Railroads using trucks as part of shipping service	59
Foreign Sales	
No. of motor vehicles sold outside U. S. (U. S. exports and Canadian output)	810,000
Value of motor vehicles, parts and tires sold outside U. S.	$680,600,000
Per cent increase in foreign sales over 1927	26
Per cent sold outside U. S.	17.5
Number of motor vehicles imported	520
Motor Retail Business	
Total car and truck dealers	53,125
Public garages	51,600
Service stations and repair shops	95,400
Supply stores	79,000
Gasoline filling stations	317,000
Gasoline pumps in use	604,000

Gains in Registrations

The registration total at the close of 1928 showed a gain of 1,496,000 cars over 1927. The increase in 1927 over 1926 was 1,206,000 cars. The increase in 1926 over 1925 was 2,189,000 cars. The gain in 1925 over 1924 was 2,252,000 cars and in 1924 over 1923, 2,292,000 cars. The record increase was in 1923 over 1922, over 3,012,000 cars. In 1922 the registration was 1,794,000 greater than in 1921, and in 1921 it was 1,299,000 more than in 1920.

Motor registrations passed the 10,000,000-mark in 1921, the 15,000,000-mark in 1923 and approached 20,000,000 in 1925.

The new record production of 4,600,000 cars and trucks in the past year was made with Ford producing in six months only what he normally would produce in one month. In 1929, when the production will in all probability exceed 5,000,000 motor vehicles, Ford will be back on his regular production schedule.

Seven Years' Production

Total production of cars and trucks for the past six years, with an estimation for 1929, follows:

Year	Cars	Trucks	Total
*1929	4,400,000	600,000	5,000,000
1928	4,060,000	540,000	4,600,000
1927	3,086,018	487,653	3,573,671
1926	3,975,640	527,891	4,503,531
1925	3,896,032	531,628	4,427,660
1924	3,317,586	415,906	3,733,492
1923	3,579,704	407,751	4,167,455

*Estimated.

Of the millions of cars and trucks produced in the United States and Canada since 1923, the following have either been exported annually as completed vehicles or as parts and then assembled abroad:

Year	Annual total sold abroad	Per cent of total
*1929	675,000	13.5
*1928	600,000	13.0
1927	518,538	14.5
1926	467,317	10.4
1925	502,700	11.4
1924	349,781	9.4
1923	297,801	7.1

*Estimated.

The past year has seen the replacement reach 2,000,000 motor vehicles. Introduction of the new Ford, making nearly 8,000,000 of the old model T of 1908 design obsolete, and with other companies introducing the new six-cylinder model into the low price class field, will hasten the scrapping of old cars and greatly increase the number of replacements.

ESTIMATED MOTOR VEHICLE REGISTRATIONS DECEMBER 31, 192

	Automobiles	Trucks and Buses
Alabama	222,900	37,2
Arizona	85,800	7,0
Arkansas	184,900	36,0
California	1,536,800	221,0
Colorado	223,600	19,0
Connecticut	270,900	40,2
Delaware	42,000	10,0
District of Columbia	133,000	16,7
Florida	280,700	51,0
Georgia	277,800	40,7
Idaho	94,200	11,0
Illinois	1,333,000	193,0
Indiana	733,000	122,0
Iowa	679,200	60,7
Kansas	462,600	56,0
Kentucky	274,000	31,0
Louisiana	240,900	39,0
Maine	140,700	29,0
Maryland	250,500	8,0
Massachusetts	673,100	87,0
Michigan	1,100,800	169,0
Minnesota	582,900	80,0
Mississippi	208,300	31,2
Missouri	628,300	71,7
Montana	105,700	22,0
Nebraska	345,200	28,0
Nevada	21,900	5,0
New Hampshire	90,000	14,2
New Jersey	636,200	141,2
New Mexico	65,900	2,0
New York	1,732,000	392,0
North Carolina	447,400	44,0
North Dakota	177,200	21,0
Ohio	1,482,300	204,2
Oklahoma	550,000	60,0
Oregon	235,000	23,0
Pennsylvania	1,429,800	232,2
Rhode Island	81,500	15,0
South Carolina	197,300	23,2
South Dakota	169,900	19,0
Tennessee	287,200	29,0
Texas	1,070,000	150,0
Utah	85,500	14,0
Vermont	79,400	7,0
Virginia	308,700	55,0
Washington	349,600	50,0
West Virginia	221,400	37,0
Wisconsin	659,400	97,0
Wyoming	49,700	7,0
Total	21,538,000	3,212,0

PRODUCTION OF 5,000,000 CARS PREDICTED DURING PRESENT YEAR

By Alvan Macauley
President, National Automobile Chamber of Commerce

The year 1929 will establish the 5,000,000 mark as the new normal production for the motor industry. Since 1923 the automobile industry has considered the 4,000,000 mark a good average output.

In arriving at 5,000,000 as the new normal base, the automobile industry is not contemplating a hurried advance in world markets. It recognizes that it must proceed deliberately and along sound lines. But when we realize that in 1923 the market beyond our borders was about 300,000 vehicles and that in 1929 it will be close to 1,000,000 vehicles, it is clear that we have greatly expanded our markets.

The American motor industry, to be sure, does not contemplate doing all of the world's motor business. Its position is that the potential demand is so vast that the greatest result will be achieved by all nations working together to improve transportation conditions, and that each will benefit from the enlarged market.

Our most important market which creates less discussion than either the export or suburban field is that of farm usage. The agricultural demand has always been the backbone of the automobile business and will continue to be so. Today there are 5,450,000 motor vehicles on farms. The progress of rural highways is making the farmer increasingly insistent upon having the advantages of consolidated rural schools, state agricultural institutions, and other social and economic advantages.

I am sometimes asked what I think of the future of the motor business over a long range period. Probably the best response to that is the statement that 93 per cent of the world's population living outside of the United States own but 22 per cent of the world's automobiles. Add to this a belief in the continued growth and prosperity of the United States. With the vast opportunity for new business abroad and the continuous demand for new and replacement vehicles at home, the automobile industry looks forward to a steady advance.

VENEZUELA ESTABLISHES NEW PRODUCTION PEA

The oil industry of Venezuela est lished new high records for monthly a yearly production last year, it was a nounced yesterday. During December t output of petroleum was 12,269,931 bbl a daily average of 395,804 bbls. and new peak. The previous record was m in November with 11,291,370 bbls. daily average of 376,379 bbls.

Production in Venezuela for 1928 w 108,098,108 bbls., against 64,437,926 bbl in 1927, which was the previous reco Shipments of oil from Venezuela in 19 amounted to 100,616,400 bbls., agai 54,593,304 bbls. in the previous year.

NEW MEXICAN CONCESSION

MEXICO CITY, Mexico, Jan. 2 Two oil concessions, totaling 65, acres in the State of Sinaloa, have be granted to Augustin Bila of Los Ange He announced that drilling would sta after necessary preparations were ma in Los Angeles.

It is reported that other large conce sions are to be granted soon. Repor that some of the larger companies a preparing to abandon the Mexican Fi have been categorically denied.

Great Gas Fields Joined to Cities

Long Lines of Large Capacity Were Built From the Arkansas, Louisiana, Texas, Panhandle and Rocky Mountain Fields

Natural gas history was made in 1928. Some of the largest and longest trunk lines in existence were built and other projects brought to a point that seems to assure more important lines which will supply gas to cities far removed from the oil and gas regions. The tremendous gas production of the Texas Panhandle, Arkansas and North Louisiana was freely drawn upon to supply the lines and in a lesser degree the big gas production uncovered in the Rocky Mountain region and in western Canada was put into commercial use by means of lines built last year. Projects not yet brought to fruition are on the board for completion in 1929 in several states.

With the exception of the years when Homer, Haynesville, El Dorado, and Smackover were in their flush, 1928 was the most active in the 22 years of the Shreveport division's oil and gas history in the matter of pipe line construction. And except for five short lines from Champagnolle to El Dorado, and a 4-inch line by Dixie Oil Co. from Pine Island production to its refinery at Superior, the more than 800 miles of construction was all trunk line work for the transportation of gas. This affords more light on the great expansion of the natural gas industry in the Louisiana-Arkansas division, an expansion which has in a measure relegated oil to second position.

With two exceptions, all this construction has been out of the Monroe and Richland Parish fields in the northeastern part of the state, these two exceptions being Arkansas Natural Gas Corp.'s 95-mile line from the Johnson County, Arkansas, gas field to Little Rock and its 56-mile tap from the Champagnolle field to Trees compressor station at Emmett on the Caddo-Little Rock main line.

Those less well acquainted with its development may be surprised by reference to Champagnolle as a gas field, but its record for the year shows 19 gas wells with a total initial open flow of 208,000,000 feet. This does not include the well completed the last week of the year which gauged over 60,000,000 feet. Local consumption in El Dorado, Smackover and fuel for drilling operations in the field supplied the market for this gas, but completion of the Arkansas Natural Gas Co.'s 12-inch line from the field to Trees station will afford a larger outlet and supply the Arkansas company a fourth source of gas for its widespread transportation system. The company's six wells in the Johnson County field, to which two more are being added, furnish 35,000,000 feet, open flow, which is more than sufficient to supply the half dozen or so small towns betwen the field and Little Rock, where the 10-inch line is tied into the main from the northwest Louisiana and East Texas sources.

Gas for Memphis, Tenn.

Two big jobs accounted for 350 miles of the 800, one of them making a "natural gas town" of Memphis, Tenn., and the other affording a new source of fuel for numerous interior and Gulf Coast cities and towns of Texas. The Memphis line, 212 miles of 18-inch with one compressor station, was completed as the year closed and because of the difficulties of terrain and a 2-mile section of Mississippi River crossing entailed in the project, stands as an engineering achievement in that it was completed and turned over to the owners in 92 days working time.

A Distinct Departure

This was one of the two outstanding features of pipe line activity in the Louisiana-Arkansas division during the year. The other was of equal or greater interest from a totally different point of view in that it introduced for the first time a departure in taking care of expansion and contraction of the line caused by changes in temperature. The innovation, briefly described, is a sliding joint, gas tight at high pressures, perfected by the A. O. Smith Corp. and tried out in practice for the first time on the Magnolia Gas Co.'s 16-18-20-inch line from the Webster Parish terminal of its line to Beaumont to the Monroe and Richland fields, 135 miles. While it was building this, the first line of major proportions taking gas to the west from the Monroe Field, the Magnolia looped the 55 miles from Latex station in Panola County, Texas, to the north Webster Parish fields via Cartersville Field in northern Bossier Parish which is tapped by a short line.

Another item of importance in the year's gas line activities was extension of the Interstate Natural Gas Co.'s line from Destrahan to New Orleans affording that city the advantages of natural fuel after a long political fight which was made an issue of the year's state campaign. The line, 22-inch, has been built for some time to serve the Standard Oil Co. refinery at Baton Rouge and another plant at Destrahan and was the first to cross the Mississippi south of Cairo.

Other Construction Activities

Lesser construction activities included lines from Elm Grove to Shreveport, Garland City to Texarkana, Ark., Lamkin to Hodge, La., and Sterlington (Monroe Field) to El Dorado. Palmer Corp. built the Elm Grove-Shreveport line, 25 miles of 8-inch Dresser-coupled pipe to bolster Shreveport and Bossier City's supply and also feed into the Arkansas Natural's system from the Sligo division of the southern Bossier Parish field.

Arkansas Natural improved its service to Texarkana by building 20 miles of 10-inch line from Garland City, where the Caddo-Little Rock trunk crosses Red River. Heretofore Texarkana has been served by the old line built years ago by the Southwestern Gas & Electric Co. as the second line out of the Caddo Field paralleling the Kansas City Southern Railroad between Mooringsport and Texarkana. Also, the company built a compressor station and absorption plant at Magenta, a short distance from Monroe on its 10-inch line from Richland and Monroe leased from Continental Supply Co., which acquired it in foreclosure proceedings against Crusader Pipe Line Co.

Change in Practice

Its experience with this particular line has led the Arkansas to change its practice in pipe line construction. From lines of large diameter and lower working pressures, it has switched over to pipe of smaller diameter and higher pressures. This old line has been operated at as high pressure as 700 pounds on the intake (from Richland Parish wells) and 300 pounds at the El Dorado gate, the average working pressures fluctuating around 500 pounds. Economy in capital buried underground is the primary advantage experienced by the company in the change of practice, operations under which have been entirely satisfactory. It is much easier and cheaper to move a compressor station than to dig up, salvage and relay a line when the source of supply has been exhausted; likewise, figure the initial investment of a large diameter low pressure line against a small diameter high pressure trunk.

Use of Electricity

In another respect the year brought out as great a change of practice in its way as the Arkansas Natural's disposition to handle gas at high pressures. This was the Standard Pipe Line Co.'s transition from steam to electricity as a prime mover in so far as availability of electricity made it practicable. Also, the company installed what was at the time the largest centrifugal pumps built for oil line use. These were Ingersoll-Rand Cameron HMT, 6-stage delivering 60,000 bbls. daily at 650 pounds discharge pressure, having a rating of 893 B.H.P. direct driven by 1,000 HP Type KPP 2,200-volt 3-phase 60-cycle motors at 1,750 r.p.m., one of the motors being General Electric and the other a Westinghouse. Installations were at Wilton, Mandeville and Fouke, Ark., stations where accessibility to high tension lines from the Southwestern Gas & Electric Co.'s web made the transition advisable. The company also did much rehabilitation work on its lines throughout the division, anti-corrosion work, loops, etc. New construction was confined to 12 miles of 8-inch line from Champagnolle to El Dorado as a tap to the El Dorado line feeding into the Oklahoma-Baton Rouge trunk.

Of some magnitude is Arkansas Natural Gas Corp. short line from El Dorado and Camden to connection with the Caddo-Little Rock trunk at Malvern and a 10-inch extension from Trees Station at Emmett west to Saratoga, Ark., with ultimate extension north to DeQueen, Mena and intervening localities. This latter depends upon fulfillment of plans for industrial developments in the Little River County limestone area. Construction of the tap from Champagnolle to Trees Station, which will be completed in February, will not, company authority says, entail abandonment of the El Dorado - Camden - Malvern line. However, this is a plan in reserve to meet the contingency of depletion in the northwest Louisiana and east Texas sources. It will meet this emergency with gas from Monroe, Richland and East Carroll Fields through a loop or extension of the Trees Station-Champagnolle line to Monroe and Richland.

Amarillo-Denver Line

Several major natural gas pipe line projects, ranking with the largest in the country, were either completed or under way in the Rocky Mountain area in 1928. The most important line completed was that of the Canadian River Gas Co. and the Colorado Interstate Gas Co. from the Amarillo Field in Texas to Denver. This line, 340 miles long and consisting of 22 and 20-inch, and built at a cost of $25,000,000, was placed in operation in the summer and is now supplying Denver and Pueblo with natural gas for domestic and industrial consumption. Plans for extending this service to Colorado Springs, where the local distribution plant is owned by the municipality, had not been consumated at the end of the year, the city and the companies having been unable to reach an agreement. However, plans for extending the system eastward from near Pueblo through the Arkansas Valley as far east as the town of Las Animas, to take in Las Animas, Rocky Ford, La Junta, and other towns, were being formulated at the end of the year and this line, which will be approximately 75 miles long, probably will be constructed in 1929. Also, the service will be extended to Littleton, south of Denver, where the Public Service Co. of Colorado, the distributor, has been granted a franchise.

An Important Project

A project ranking with the Amarillo-Denver line in importance that is scheduled for construction in 1929 is a natural gas line from the Baxter Basin and Hiawatha structures in Wyoming and Colorado to Salt Lake City and Ogden, Utah, and taking in intervening towns and southern Idaho. The line will be built by the Western Public Service Co. and subsidiary organizations, including the Uinta Pipe Line Co., which has been formed as the transportation company. The controlling factors in the undertaking are the Ohio Oil Co., the Prairie Oil & Gas Co., the Producers & Refiners Corp., the Columbia Gas & Electric Corp., and affiliated organizations. Franchises and permits necessary to the beginning of construction have been obtained, 33,000 tons of 14, 16 and 18-inch pipe have been ordered and the engineering work is now under way. The line will be approximately 287 miles long and will cost in the neighborhood of $20,000,000. Branch lines probably will bring the total up to 350 miles of pipe. Construction is expected to begin shortly after the first of the new year and plans provide for having it completed by fall. There will be several units organized to handle the project, but for the present the Ohio Oil Co. will be in charge of the producing end, the Prairie and Producers & Refiners companies in charge of the transportation, and the Columbia Gas & Electric Corp. in charge of the distribution.

New Mexico-El Paso Project

Another major project which is located outside of the Rocky Mountain district proper, but which will draw its supply of gas from Lea County in southeastern New Mexico, is a line from Lea County to El Paso. The El Paso Natural Gas Co. has been organized by the Moody-Seagraves interests of Houston, to build the line which will be 200 miles long and will cost around $15,000,000. At El Paso the gas will be wholesaled to the Texas Cities Gas Co. for distribution in that city and adjacent territory. Contracts have been made for an average of 14,800,000 feet per day. The gas will be purchased from the Marland Oil Co., the Texas Production Co., the Amerada corporation, and the Columbian Carbon Co., all of which own or have interests in developed gas production in Lea County amounting to around 200,000,000 feet per day. Plans provide for the completion of the project by May 1, 1929.

The Pecos Valley Gas Co., organized by A. T. Woods, and associates, constructed a gas line from the Artesia Field to the town of Artesia and placed it in operation in June, it being also the distributor in Artesia. It then began the construction of a 45-mile line from Artesia through the Pecos Valley to Roswell at a cost of $250,000. The Roswell line is about completed. The Southwestern Public Service Co., recently organized, was granted the retailing franchise in Roswell. The gas will come from the Artesia Field in part and from the Phillips Petroleum Co.'s gasoline plant east of Artesia, the latter contract calling for 1,500,000 feet per day.

Ute Dome to Durango

Another interstate project under way is that of a line from the Ute Dome in northern New Mexico, to the town of Durango, being constructed by the Hope Engineering & Supply Co. This company has organized the Durango Natural Gas Co. to which it has assigned its franchise to operate in that city. The distributing company will buy the gas at the city gates from the Mesa Grande Gas Co., another company organized by the Hope interests, which will transport the gas from the Ute Dome, which lies 4 to 5 miles west of the village of La Plata. The transporting company will buy the gas from the Midwest Refining Co. and the Producers & Refiners Corp., which have several gas wells on the structure. The project calls for 36 miles of 6-inch line exclusive of 14 miles of city mains. Part of the line is completed, but the construction has been delayed until winter conditions moderate.

New Line to Calgary

The outstanding pipe line construction in Canada in 1928 was the new 14-inch line laid by the Canadian Western Nat-

ural Gas, Light, Heat & Power Co. of Calgary, to the Turner Valley Field.

The company originally drew its gas supply through a 16-inch line from the Bow Island Field, this line being later connected with other fields opened at Barnwell and Foremost. Some years ago arrangements were made to supplement the declining Bow Island supply with scrubbed gas from the Turner Valley. A 6-inch line was accordingly laid to connect the Turner Valley supply with the Canadian Western main line near Okotoks. Later a 10-inch line was laid direct from the field to Calgary.

These two lines have been supplemented by a 14-inch line connecting the Turner Valley Field with the main line at or near De Winton. The new construction required some 18 miles of 14-inch pipe. The previous maximum capacity of the Turner Valley lines was 25,000,000 feet a day, but the new line increases this to approximately 55,000,000 feet, or a margin of some 13,000,000 feet over the highest previous Calgary peak load.

The laying of the new line commenced early in August, and was completed in time to deliver gas to Calgary before the cold weather set in. With this additional supply, the Foremost and Bow Island Fields will henceforth be maintained as reserves, the Turner Valley gas being used entirely for Calgary's requirements.

No new pipe line construction in connection with the Canadian Western system is forecast for the coming year; but plans are being shaped for a practical test of the storage of waste gas from the Turner Valley Field in the exhausted sands of the Bow Island Field. The gas will be forced back through the old Bow Island main line under heavy pressure, a pumping system being provided for this purpose. The project may necessitate some replacement of the original 16-inch line, though this point has not yet been determined.

In western Canada the Canadian Western Natural Gas Co. has made considerable extensions to its distributing systems in Calgary, Lethbridge and other communities, and extensions have also been made to the Northwestern Utilities distribution in Edmonton.

In eastern Canada there has been little or no new pipe line construction, but the Union Natural Gas Co. has spent large sums in replacements and in the extension of its local distributing systems in southwestern Ontario. The Southern Ontario Gas Co. has constructed a scrubbing plant at Glenwood to handle its Tilbury sulphur gas production in the field.

New Gas Lines in Montana

Two major pipe line operations involving the expenditure of $5,000,000 were completed in 1928, affording a market for Montana gas production. The gas line from the Kevin Sunburst Field to the city of Great Falls, started in the winter of 1927-28 was completed in May. The line is 111 miles long, exclusive of gathering lines, and cost in the neighborhood of $2,000,000. Construction work was done by the Hope Engineering Co. of Mount Vernon, Ohio, for the Montana Cities Gas Co.

The other large project was the Montana Dakota Power Co. line which originated in the Cabin Creek district and terminated in the Black Hills in South Dakota. The Black Hills line consists of over 250 miles of pipe, the main line being 175 miles long, and was laid at a cost of $3,000,000.

Early in the fall the Great Falls Gas Co., which markets gas from the Kevin-Great Falls line, laid a 4-mile loop of 12-inch pipe around the city in order to facilitate gas deliveries in cold weather. This project cost close to $50,000.

The Citizens Gas Co., organized in Shelby, laid an 8-mile line to that city and installed a distribution system in competition with that of the Great Northern Utilities Co.

The Montana Dakota Power Co. applied for the necessary permit to lay a gas line from the Cabin Creek district to a number of towns in North Dakota, but construction work had not started at the end of the year. The same company is now planning to lay a line to serve 26 towns along the line of the Great Northern Railroad, construction to start in 1929 though the line will not be completed until 1930.

The Ohio Oil Co. is contemplating laying a gas line from its new well on the Dry Creek structure in southern Montana to Billings to augment the gas supply for that city, and this line may be considered as one of the projects in prospect for 1929.

Lines from Panhandle

Construction of gas transmission systems in North and West Texas was confined mainly to the former. Colorado Interstate Gas Co. completed a 340-mile project from the Texas Panhandle to Denver, Colo. The line was built with 20 and 22-inch pipe. Midwest Gas Co. completed a 165-mile 14-inch gas line from the Shamrock area in Wheeler County of the Panhandle to Enid, Okla.

West Texas Gas Co. carried on the most expansion work in West Texas when it completed an expansion project of extending its line from the South Plains to Odessa. The line originally was built from the Panhandle to Lubbock in the South Plains.

California Gas Projects

At least one trunk gas line of major consequence is expected to be laid in 1929 in California. This is the line which is designed to supply the Oakland and San Francisco Bay region with natural gas. It has been under consideration for more than a year but construction work has been held up pending the development of a consistent stable supply of natural gas and the straightening out of the political angle as to who shall construct and maintain the operation of this public utility. The recent completion of a prolific producer by the Milham Exploration Co. at Kettleman Hills is expected to result in an early laying of this projected 300-mile gas line as a future supply of natural gas in large quantities has been definitely assured. In addition to the potential supply of natural gas in the recently discovered Kettleman Hills Field of Kings County, the Milham Exploration Co. has an additional reserve in the Buttonwillow gas field of Kern County, which this company discovered more than a year ago. It had been expected that the San Joaquin Valley natural gas line would be in actual operation early in 1929 but construction work did not get under way last year as had been expected. It appears a foregone conclusion, however, that this project will be rushed to an early conclusion as there is an ample supply of natural gas to justify its existence. Marketing conditions on the Pacific Coast will probably determine whether or not the Shell Oil Co. will extend the southern terminus of its Martinez-Coalinga line down into the Mount Poso and Round Mountain Fields of Kern County during 1929, as these districts yield a heavy crude oil and the Shell is not expected to extend existing facilities unless this oil can be utilized to advantage. This company is engaged in deep sand exploration in the Midway-Sunset Field of Kern County at the present time and if commercial production is secured this might also become a factor affecting the construction of this projected line which will ultimately be laid as the Shell is utilizing pipe line facilities of the Union pending construction of its own line.

Gulf Coast's New Gas Lines

Several gas lines were laid in Gulf Coast territory during the year and another fair sized project is under way. This does not include numerous small lines laid from the trunk lines of the Houston Pipe Line Co. and the Houston Gulf Gas Co. and Dixie Gulf Gas Co. to towns along these main lines.

Of some importance to industries of Houston was the laying by the Houston Pipe Line Co. of 38 miles of 12-inch line from Bay City to Freeport. This connects the company's main line from Southwest Texas to Houston at Bay City with the company's line from Houston to Freeport and gives a loop into Houston, increasing the capacity of the entire system by 20,000,000 feet of gas daily.

This company extended its main line to the Refugio Field on to the White Point Field, a distance of 28 miles. A 12-inch line was laid from Texas City across Galveston Bay to the city of Galveston and a shorter line was laid from a point near Baytown to the town of LaPorte.

The Moody-Seagraves interests were particularly active in extending its distribution systems and in connecting additional towns to its two main systems, that of the Houston Gulf Gas Co. from Southwest Texas to Houston and that of the Dixie Gulf Gas Co. from Northeast Texas to Houston and Port Arthur. Of some importance was the laying of a branch from the Southwest Texas system to the Boling Dome sulphur operations, which will consume several million feet of gas daily.

The Moody-Seagraves interest have under construction a project laying a line from Houston to the Barbers Hill, Liberty and North Dayton Fields. This line will total more than 40 miles and will serve not only the fields but also several important towns.

OIL IN CENTRAL AND WESTERN MICHIGAN

(Continued from Page 214)

itself within six weeks after it was drilled in and three or four times more since then.

The field spread from the discovery well and new gas and oil producing strata have been discovered in the Dundee formation within the past year. The record well in the upper Traverse formation was brought in in December with an initial flow of about 1,500 bbls. in 24 hours. The record oil well in the Dundee formation was a 3,000-bbl. initial producer while gassers with an open flow capacity of from 5,000,000 to as high as 25,000,000 feet have been hit in both formations.

Gas in Two Sands

The gas of the upper Traverse formation has practicaly been exhausted in the course of the past year while there is an aggregate open flow capacity of gas from the Dundee formation of about 250,000,000 feet a day.

All of the oil produced in the field has been purchased through the Dixie Oil Co. and shipped to Standard Oil Co. refineries at Saginaw and Whiting, Ind. The daily pipe line runs following the completion of several large producers in the Dundee formation late in the year was averaging between 2,500 and 3,000 bbls. until salt water cut off the oil and reduced the daily production to about 2,000 bbls. in mid-December.

Traverse Wells Soon Settled

Most of the early Traverse wells brought in during the first six months of the development of the field have dropped to an average flow of about 10 bbls. a day or have stopped and at the close of the year were being pumped. There are several exceptions to this in the upper Traverse which were brought in more recently as the record wells in the upper pay sands.

Drilling Record in 1928

The record of the field in 1928 shows that 89 oil wells, 28 gas wells and 19 dry holes have been completed.

This record includes wells both in Muskegon and Laketon townships and wells both in the upper and lower Traverse and Dundee formations.

There were nearly 100 drilling rigs at work in some part of the Muskegon Field or on wildcat wells in other townships of Muskegon County at the close of the year. There were about 10 wildcat wells drilling in Oceana, Newaygo, Kent and Ottawa counties surrounding Muskegon county.
at the present time.

Only two wildcat wells in other townships of Muskegon County have been dry. Both of these were carried to the Dundee formation. They were located in Norton and Eagleton townships, south and east, respectively, of the Muskegon Field.

With more than 30 companies and individuals having production in the Muskegon Field and another 30 or more drilling wells but not owning any completed producers, thorough exploration of the Muskegon area as well as most of western Michigan is assured.

For it is predicted that there will wells drilling in the western part of the state for years to come. How long the Muskegon Field will last, and what new production will be discovered in other parts of Muskegon County, only time will tell. Today it is the most important field in Michigan and in fact, the most important development in the oil industry east of the Mississippi River.

Midland-Isabella Area

In the course of review of the year's work in Michigan, the oil editor of the Saginaw News says: "Oil activities in the Saginaw Valley turned again to the exploratory and development stages, center now in the stretch of land along the western boundary of Midland and the eastern edge of Isabella counties. The Saginaw Field, now settled down to a matter of pumping existing wells with only a little development work in progress and that rather discouraging, has passed from the limelight for the moment and the attention of oil men has been directed farther afield.

"What this Midland-Isabella County development may amount to is something on which seasoned oil men do not like to commit themselves definitely, though they declare that there are many promising signs in that development. Four wells have so far been completed to the Dundee lime, the principal producing formation that has been discovered there while seven others are now reported drilling. Three of the wells are now declared to be producing slightly more than 200 bbls. a day in the aggregate while a fourth, about a mile and a half to the northwest, is reported to be doing about 50 bbls. a day. The Midland-Isabella counties work is largely an enterprise of the Pure Oil Co. which has a block of approximately 80,000 acres in that general locality.

Saginaw Settled Field

"In the Saginaw Field there has been little new work done the past year. The only important exception to this has been a test of the Saginaw Prospecting Co. which deepened one of its wells on the city-owned Deindorfer Woods property at the north edge of the city of Saginaw. The well got small shows of oil at various levels, one of them being a show of gas and oil in the Monroe at 3,560 feet which for a time seemed encouraging but failed to develop any production worth while in a well of that depth. The well had reached a total depth of 3,570 feet at this writing, and will be drilled still deeper officials of the company have announced.

"For the rest of the Saginaw Field operations have been for the most part confined to producing the wells already drilled. Here experiences have been mixed. Some of the wells have held up fairly well, but others have fallen off badly until some produce only a few barrels a week. The total production of the Saginaw Field at the close of the year was from 350 to 400 bbls. a day."

MICHIGAN

Summary of Wells Completed in 1928

Month—	Comp.	Prod.	Dry Gas
January	1	20	0
February	1	170	0
March	6	44	4
April	13	632	4
May	11	780	3
June	3	480	0
July	19	1,462	2
August	8	855	0
September	14	210	2
October	20	2,765	3
November	27	9,100	3
December	31	3,235	5
Total 1928	154	19,753	26
Total 1927	264	4,327	44
Difference	110	15,426	18

Summary by Counties

County—	Comp.	Prod.	Dry Gas
Muskegon	136	19,119	13
Isabella	3	366	0
Monroe	4	202	1
Gratiot	3	23	1
Midland	1	43	0
Saginaw	1	0	1
Alpena	1	0	1
Ottawa	3	0	3
Oceana	1	0	1
Mason	1	0	0
Total	154	19,768	26

SOUTHWEST TEXAS FIELDS

(Continued from Page 70)

Castro Survey, is dry and abandoned at 502 feet.

Wester's No. 1 Odom is dry and abandoned at 480 feet.

Webb County

The Texas Company's No. B-1 Bruni, Block 74, Aviator Field, at 2,500 feet is dry and has been abanodned.

NEW LOCATIONS

Brooks County

Edward H. East's No. 1 B. Garcia, Block 13, Las Mestena Grant, is location 400 feet to north and east lines.

Colorado County

Shell Petroleum Corp.'s No. 1 Neuendorff, J. Boyd Survey, is location 200 feet to south line and 500 feet to east line.

Caldwell County

J. S. Abercrombie Oil Co.'s No. 5 Lida Moses, A. Floyd Survey, is rigging up at 2,724 feet to pump.

Turman & Brown's No. 1 Beversdorff, A. Floyd Survey, is location 150 feet to southeast lines and 131 feet to southwest lines.

Gonzales County

Empire Gas & Fuel Co.'s No. 1 River Bed, southwest of the company's No. 1 Norwood, is moving in rig.

Guadalupe County

Simms Oil Co.'s No. 1, Joseph D. Clements Survey 2½ miles west of Seguin, is moving in machinery.

Shell Petroleum Corp.'s No. 1 Charles Grein, 4 miles south of Seguin, is rigging up.

Jim Hogg County

A. L. Kitselman's No. 1 Lopez, Survey 255, Block 6, located 289 feet to north line and 300 feet to west line, is moving on.

Lavaca County

B. L. Laubenheim's No. 1 S. D. Johnston, William Diggers Survey, is location 450 feet to north and west lines.

Refugio County

Union Exploration Co.'s No. 1 Rooke is rigging up.

Webb County

Livingston & Payne's No. 1 Guerra-Ochoa, Survey 58, located 917 feet to east line and 497 feet to south line, has derrick up.

Cosner-Danmier's No. 2 G. Benavides, Survey 11, Block 14, located 150 feet to southeast and southwest lines, is moving on.

O. W Killam's No. 5 Bruni, Survey 8, Block 26, located 270 feet to northwest lines and 203 feet to southwest lines, is drilling at 100 feet.

Simms Field—Duval

Simms Oil Co.'s No. 3 Dinn, Survey 62, located 660 feet to north and east lines of Simms tract, is retesting sand at 1,761-65 feet that tested gas.

Humble-Reiter-Foster Pool

Humble Oil & Refining Co.-Reiter-Foster's No. 12 Kohler, Survey 403, located 1,485 feet to south line and 165 feet to east line, has set casing at 312 feet; No. 13 Kohler, Survey 163, located 495 feet to east line and 165 feet to south line, is drilling at 521 feet with 10-inch casing set at 291 feet.

Driscoll Field

Robert Driscoll's No. 14 Driscoll, Survey 448, located 2,750 feet to east line and 550 feet to south line, is drilling at 250 feet, 10-inch casing set at 23 feet.

Alworth Pool

Brooklyn Oil Co.'s No. 2 Garza, Survey 40, Block 16, located 150 feet to northeast lines and northwest lines, has derrick up.

Schoolfield-O'Byrne Field

Magnolia Petroleum Co.'s No. 3-B Hahl, Survey 61, located 3,081 feet to east line and 150 feet to south line, is running tubing at 2,333 feet. Sun Oil Co.'s No. 2 Norton (W. P.), Survey 250, Block 19, located 450 feet to east line and 150 feet to south line, at 2,359-63 feet is standing 500 feet in oil; No. 2 Henne-Winch, Survey 250, Block 20, located 150 feet to north and west lines, has sand at 2,333-35 feet and shale at 2,367 feet and is shut down for orders. S. & O. Oil Co.'s No. 2 Bowe, Survey 250, Block 21, located 220 feet to east line and 660 feet to south line, has derrick up. Onyx Oil Co.'s No. 3 Krauter, Survey 250, Block 20, located 450 feet to north line and 150 feet to east line, has sand at 2,343-47 feet and is setting casing.

Randado Field—Jim Hogg

Magnolia Petroleum Co.'s No. 41 Merchants State Bank, Survey 155, located 150 feet to north and east lines, is drilling at 2,978 feet. Randado Oil Corp.'s No. 29 Palacious, Survey 291, Block 14, is testing sand at 1,273 feet; No. 30 Palacious, Survey 291, Block 3, is testing sand at 1,287 feet.

Reiser Field-Webb

Marts & Beavens' No. 2 Johnson, Survey 602, Block 10, located 150 feet to south and west lines (location changed), is drilling at 1,000 feet. W. O. Wheatley's (R. C. Holsworth) No. 1 Wheatley, Survey 1,569, Block 3, located 847.7 feet to north line and 305.2 feet to east line, is drilling at 2,400 feet.

Albercas Field

O. W. Killiam's No. 33 Bruni, Block 64, is drilling at 1,400 feet. Sun Oil Co.'s No. 12-A Yeager-Strohman, Share 5, located 4,675 feet to north line and 150 feet to west line, has sand at 2,153-55 feet and is standing; No. 13-A Yeager-Strohman, Share 5, located 4,975 feet to north line and 150 feet to west line, has sand at 2,153-62 feet and is testing. Magnolia Petroleum Co.'s No. 13 Yeager-Strohman, Share 5, located 150 feet to west line and 750 feet to south line, is drilling at 4,760 feet; No. 14 Yeager-Strohman, Share 5, located 900 feet to north line and 575 feet to east line, has derrick up; No. 15 Yeager-Strohman, Share 5, located 1,400 feet to north line and 575 feet to east line, has derrick up. Rycade Oil Corp.'s No. 8 Yeager-Strohman, Share 5, located 1,950 feet to north line and 150 feet to east line, is standing at 2,145 feet. A. M. Major's No. 1 Holbien, Share 3, Block 6, is location 150 feet to north and east lines. Edward St. Albans' No. 4 Holbein, Share 3, Block 7, located 150 feet to north and west lines, is moving on.

Aviator or Bruni Tracts

The Texas Company's No. 1 Bruni, Block 74, located 510 feet to east line and 2,490 feet to south line, is drilling at 2,060 feet.

Carolina-Texas Pool

C. R. Miller's (Miller & Daniels) No. 1 de la Garza, Survey 48, Block 47, located 150 feet to north and east lines, is drilling at 2,250 feet. W. R. Shankle's No. 1 Webster, NW SW Survey 684, located 150 feet to south and west lines, is drilling at 2,300 feet. Foster Barnsley's No. 1 Webster, NE SW Survey 684, located 150 feet to north line and 150 feet to east line, is drilling at 2,450 feet. Barnsley-Scharf-Kirk's No. 2 de la Garza, Survey 335, Block 21, located 200 feet to north line and 150 feet to east line, tested oil at 2,202 feet, set casing and is testing again.

Andrews Field

Cosner-Danmier's No. 1 D. Benavides, Survey 11, Block 6, located 150 feet to northeast lines and 350 feet to southeast lines, has sand at 1,520-30 feet and set casing at 1,520 feet.

Charco-Redondo Field

W. R. Duke's No. 3 Martinez, Block 22, W. R. Duke subdivision, 1,300 feet to northwest lines and 840 feet to northeast lines, is moving on.

Magnolia-Cole Field

Cole Petroleum Co.'s No. 67 Benavides, Survey 412, Block 12, located 313 feet to east line and 160 feet to north line, is moving on. Houston Oil Co.'s No. 4-D Benavides, Survey 753, Block 13, is location 160 feet to south line and 822.5 feet to east line; No. 17-D Benavides, Survey 753, Block 5, is location 160 feet to south and west lines; No. 19-D Benavides, Survey 753, Block 5, is location 660 feet to east lines and 160 feet to south line; No. 1 Rosa Benavides, W half SE Survey 701, is location 160 feet to south and east lines. Magnolia Petroleum Co.'s No. 1 Benavides-Volpe, SE SW Survey 660, located 150 feet to south and west lines, is drilling at 850 feet; No. 1 Benavides, Survey 697, Block 10, located 150 feet to north and east lines, is location; No. 1 King-Benavides, Survey 694, Block 12, is location 150 feet to south and east lines. Union Exploration Co.'s No. 1 Benavides, Survey 694, Block 3, located 150 feet to south and east lines, is rigging up. W. F. Morgan's No. 1 Benavides, NE SW Survey 693, located 150 feet to south and west lines, is drilling at 300 feet with surface casing set at 55 feet.

Jennings Field—Zapata

O. W. Killiam's No. 11 Cuellar, Cerrito Blanco grant, 1,095 feet to southwest lines and 160 feet to southeast lines, has sand at 1,462 feet and has set casing. Charles L. McCaslin's No. 1 R. Hinnant, Survey 74, located 2,390 feet to west line and 630 feet to south line, has derrick up. South Texas Production Co.'s No. 3 Jennings, Cerrito Blanco grant, 9,397 feet to southeast lines and 9,710 feet to southwest lines, is drilling at 1,387 feet. Killam-Duggan's No. 4, Cerrito Blanco grant, is location.

Mirando Valley Field

O. W. Killam's No. 1-A R. Lopez, Survey 113, Block 5, located 250 feet to west line and 340 feet to north line, is drilling at 1,900 feet.

Yoast Field—Bastrop

Atlantic Oil Producing Co.'s No. 2 A. M. Yoast, A. Garcia Survey, 1,950 feet to northwest lines and 150 feet to southeast lines, is testing serpentine at 1,467 feet; No. 3 A. M. Yoast, A. Garcia Survey, 150 feet to southwest and northeast lines, is at 1,385 feet in serpentine topped at 1,367 feet. Judge Batts' No. 1 White, 2 miles northwest of field, is drilling at 1,000 feet. Cranfill & Reynolds' No. 6 Yoast is drilling at 925 feet; No. 1 Stork, H. Stewart Survey, 150 feet to north and east lines, is drilling at 1,760 feet. Gulf Production Co.'s No. 1 A. M. Yoast, A. Garcia Survey, 1,593 feet to northwest lines and 150 feet to northeast lines, is drilling at 985 feet. Sun Oil Co.'s No. 1 Yoast, A. Garcia Survey, 1,650 feet to northwest lines and 150 feet to northeast lines, at 1,588 feet is plugging back to 1,578 feet.

Bruner (Salt Flats) Field—Caldwell

Tip DeArman's No. 1 R. W. Carter, A. Floyd Survey, 120 feet to west line and 148 feet to north line, at 1,250 feet cratered and is still running wild. Brawn and others' No. 1 R. W. Carter, Gerren Hinds Survey, 150 feet to south and west lines, is fishing at 2,679 feet. Cranfill & Reynolds' No. 1 S. Smith, A. Floyd Survey, 150 feet to south and west lines, is in Edwards at 2,685 feet. C. E. Ellzey's No. 1 Taylor, has set surface casing at 42 feet. Golden West Oil Co.'s No. 6 Wilson, A. Floyd Survey, 300 feet southeast of No. 1, at 2,734 feet is being put on the beam; No. 2 Cora Malone, A. Floyd Survey, 50 feet southeast of No. 1, is at 2,732 feet. Gulf Production Co.'s No. 1 W. O. Allen, G. Hinds Survey, 150 feet to east line and 173 feet to south line, is building derrick; No. 7 W. L. Smith, 300 feet north of No. 6, has derrick up; No. 8 W. L. Smith is drilling at 2,696 feet; No. 7 Connally is drilling at 2,330 feet in chalk and will bail at that depth; No. 3 J. J. Davis is drilling at 2,534 feet. Humble Oil & Refining Co.'s No. 2 T. B. Johnson, James Hinds Survey, 600 feet west of No. 1, is fishing at 1,070 feet; No. 3 J. B. Tiller is rigging up; No. 4 J. B. Tiller is setting surface casing at 59 feet; No. 1 J. J. Davis, A. Floyd Survey, 150 feet to north line and 453 feet to west line, is drilling at 2,600 feet; No. 2 J. J. Davis is drilling at 2,695 feet; No. 3 J. J. Davis is drilling at 2,288 feet; No. 1 W. W. Hickman, G. Hinds Survey, 150 feet to north and east lines, has derrick up; No. 3 William Smith is drilling at 2,568 feet showing oil; No. 2 Floyd Tiller, G. Hinds Survey, 150 feet to north and west lines, is location. C. E. Lange's No. 1 W. P. Walker, G. Hinds Survey, 150 feet to north and west lines, is standing at 2,771 feet showing oil and water; No. 2 W. P. Walker G. Hinds Survey, 150 feet to west line and 214 feet to south line, is standing at 1,500 feet; No. 1 Kate Colding, A. Floyd Survey, 150 feet to northwest lines and 112 feet to northeast lines, is at 2,687 feet, where it was shot with 150 quarts at 2,480 feet in the chalk and is showing oil. Lutex Oil, Inc., No. 5 W. F. Davis, A. Floyd Survey, 300 feet southwest of No. 1, at 2,703 feet has 1,400 feet of oil in the hole; No. 6 Davis, A. Floyd Survey, is at 2,763 feet with 30 quarts of nitro stuck in hole above a bridge and is standing. Linderman & Atlantic's No. 2-A Davis, is drilling in at 2,306 feet. Luling Oil & Gas Co.'s No. 3 Carter is drilling at 2,918 feet. Speer Well Oil Co.'s No. 1 E. L. Mayton, Hector McNeil Survey, is drilling at 2,810 feet. H. C. Ratcliff and others' No. 1 Cora Malone, A. Floyd Survey, 150 feet to north and west lines, is standing at 2,694 feet. Shell Petroleum Corp.'s No. 1-B Carter, Gerren Hinds Survey, 150 feet to south and west lines, has derrick up; No. 1 Malone is location; No. 2 Malone is at 2,710 feet bailing 800 bbls. of oil and 300 bbls. of water; No. 2 W. L. Smith (William Moses), 300 feet north of No. 1, is moving in rig; No. 3 W. L. Smith (Moses), A. Floyd Survey, 150 feet to south and east lines, is at 2,695 feet deepening to the Edwards; No. 2 F. Tiller is setting casing at 53 feet; No. 1 Floy Tiller is at 2,707 feet waiting on cement; No. 1 J. Smith, A. Floyd Survey, 150 feet to north and east lines, is drilling at 2,710 feet. Sun Oil Co.'s No. 4 Malone, A. Floyd Survey, 1,033 feet to northwest lines and 150 feet to northeast lines, is at 2,714 feet running tubing. The Texas Company's No. 1 Lee Moses, G. Hinds Survey, 150 feet to CWL, is at 2,641 feet rigging up to pump; No. 3 Merriweather has derrick up; No. 4 Merriweather is setting casing at 2,314 feet, total depth 2,419 feet; No. 5 Merriweather, A. Floyd Survey, 150 feet to northeast and southeast lines, has derrick up; No. 6 Merriweather, A. Floyd Survey, 150 feet to northwest lines and 70 feet to northeast lines, has derrick up.

Lockhart Field

The Texas Company's No. 2-B Branyon, John R. Miller Survey, 1,580 feet to west line and 150 feet to south line, at 2,356 feet bailed dry and filled with 350 feet of oil and water in half an hour.

Sullivan Field—Gonzales

Cranfill & Reynolds' No. 1 J. F. Webb, Winslow Turner Survey, 150 feet to north and east lines, is drilling at 2,700 feet. The Texas Company's No. 1 J. E. Lamkin, Winslow Turner Survey, is location 800 feet to northwest lines and 200 feet to southwest lines.

Luling Field—Guadalupe

A.B.A. Oil Co.'s No. 4 Britton Harris is shut down at 1,250 feet from repairs on boilers. Magnolia Petroleum Co.'s No. 1 M. Schubert is drilling at 2,164 feet.

Kingsville Field—Kleberg

Humble Oil & Refining Co.'s No. 4 Flato, Section 40, Block 10, located 250 feet to east line and 450 feet to north line, is drilling at 4,427 feet.

Agua Dulce Field—Nueces

Agua Dulce Oil & Gas Co.'s No. 1 Sanders, Benton's Pasture, 660 feet to north line and 1,980 feet to west line of Section 35, is at 1,971 feet in gas sand, 40 feet high, and will test this week. Milam Drilling Co.'s (Davis-Horn and others) No. 1 Thomas Ragland, SW cor. Lot 13, is drilling at 2,054 feet. R. & G. Corp.'s No. 1 Brown, George H. Paul Subdivision, Section 87, is location; No. 2 Ed Allen, 150 feet to north and east lines of Lot 5, Section 6, is location.

Saxet Field

Saxet Gas Co.'s No. 5 Dunn is location 1,500 feet southwest of No. 1 Dunn, discovery well of the field.

Refugio Field—Refugio

Houston Oil Co.'s No. 5 Wilson Heard, 300 feet west of No. 4, is moving on; No. 1 Blanco River is location. Houston Gulf Gas Co.'s No. 4 J. M. O'Brien, Survey 4, south central part, is spudding in; No. 1 Fox, Refugio town tracts, is drilling; No. 3 Fox, town tracts, Lot 4, Block 5, at 3,300 feet is starting to lubricate to drill deeper; No. 7 James Agnes Lambert, town tracts, at 4,688 feet cored shale; Mission Drilling Co.'s No. 3 Rogers Estate is erecting derrick; No. 1 Nellie B. Cummins, town tracts, 150 feet to north and west lines, is drilling at 1,600 feet. William M. Morgan's No. 1 Rooke, 1,000 feet southwest of Texas Gas Co.'s No. 1 Claude Heard at 4,683 feet cored sandy shale with no oil. Union Exploration Co.'s No. 1 Holmes Heard, town tracts No. 3, Block 8, located 150 feet to south and east lines, at 3,695 feet is bailing and shows oil and gas. Union Exploration Co.-William F. Morgan's No. 2 Leslie Ad-

kins, Block 8, town tracts, 150 feet to south and east lines, at 3,669 feet is preparing to drill in.

SOUTHWEST WILDCATS

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drilled, The Texas Company drilled No. 2-B Branyon, a little southwest of No. 2 and got about a 20-bbl. well last week from the Edwards lime at 2,350 feet. No. 2 Branyon made about 150 bbls. of oil a day and is still producing some oil but it never reached the Edwards, producing from the point where it drilled through a fault plane. The Texas Company believes enough in the area that it is moving east and will drill another hole.

Duval County

National Oil Co.'s No. 2 Ball, 300 feet to north and west lines of Block 5 of subdivision of Ball ranch, is using magnetometer to check location. Magnolia Petroleum Co.'s No. A-2 Hahl, Survey 51, located 150 feet to south and east lines, is drilling at 4,780 feet. O. Henry Oil Co.'s No. 1 Henry, Block 1,879 of Snodgrass Subdivision of east corner of Mesquite ranch, 450 feet to southeast lines and 220 feet to northeast lines, is drilling at 1,150 feet. W. F. Morgan's No. 1 Welder-Woods, Survey 102, located 2,725 feet to east line and 75 feet to south line, has derrick up.

Starr County

The Texas Company's No. 1 Ofelia Resendez, Porcion 69, Block 174, located 150 feet to south and east lines, is drilling at 3,400 feet. Crays & McCardle's No. 1 Hicks & Hicks, Perdernal grant, south part, 150 feet to northeast lines and 200 feet to southeast lines, is moving on.

Webb County

Edouard Raymond's No. 1 Schmellzer, Share 2, J. Galan grant, Brewster pasture, is moving on. G. S. Lumpkin, Porcion 33-34-35, Block 17, Harry L. Fansler Subdivision, 1,170 feet to east line and 150 feet to south line, is location. L. W. Nelson's No. 1 Moglia, Survey 672, located 150 feet to east line and 2,584 feet to south line, is moving on.

Zapata County

National Oil Co.'s No. 1 Don B. Adams, N half of Section 11, Block 4 of subdivision of Don B. Adams tract, is moving in rig. John Pappas' No. 1 Cuellar, Porcion 33-34, Block 5, is moving on.

Bastrop County

Gypsy Producing Co.'s No. 1 Lottman estate has resumed drilling at 2,320 feet after having been shut down since last June. Billy Mayfield's (Krebs & Leach) No. 2 McColl, Stephen F. Austin Survey, 50 yards west of No. 1, is shut down at 1,010 feet.

Bexar County

Allen Burnam's No. 1 Ward, A. A. Gardiner Survey, 1,200 feet to east line and 325 feet to south line, is shut down at 1,600 feet. Dixie Oil Co.'s No. 1 Medina Irrigation Co., William Miller Survey No. 180, located 1,666 feet to north line and 470 feet to west line, spudded in and shut down. Humble Oil & Refining Co.'s No. 2 Oppenheimer, J. M. Urriegas Survey, is a location 300 feet north of No. 1. Indian Creek Oil & Gas Co.'s No. 1 W. Wolfsohl, J. A. Navarro Survey No. 5, located 180 feet to center east line, spudded in with light rig and is now changing to heavy rig to drill to Edwards lime. William M. Morgan's No. 1 E. S. Bridge, about 400 feet southeast of juncture of Hildebrandt and Gardner roads, is moving in derrick. Moore-Jauer's No. 1 Holly R. Ellison, T. York Survey, 2,916 feet to east line and 1,500 feet to south line, at 355 feet is showing oil and will set casing and make a test. B. L. Raborn's No. 1 Engelman, John James Survey No. 73, located 300 feet to south line and 600 feet to east line, is resuming work at 1,715 feet.

Caldwell County

Fred Adams' No. 1 Burney, Gideon Pace Survey, is shut down at 2,802 feet in Edwards lime with sulphur water. John V. Edwards' No. 1 W. C. Caldwell, Cornelius Crenshaw Survey, 600 feet to south line and 300 feet to east line, is fishing at 1,700 feet. Rogers & Heap's No. 1 F. W. Forrester, Thomas J. Halton Survey, 450 feet to west line and 750 feet to south line, is in top of Edwards at 1,608 feet. George B. Walker and associates' No. 1 L. H. Lynch, Dorothy Benton Survey, 300 feet to south and west lines, has set casing at 1,832 feet to test oil showing in the chalk.

Blanco County

C. W. Bates' No. 1 Herman Massey, Henry Manton Survey, 920 feet to north line and 660 feet to east line, is shut down at 214 feet. Robert A. Rodson's No. 1 Glasscock, Survey 50, located 150 feet to center east line, is standing at 962 feet with oil in the hole.

Calhoun County

B. F. Thompson's No. 1 Thomas, John P. Tully Survey, 920 varas north, 5 feet 30 inches west of north corner of John C. Post Survey, is drilling at 2,390 feet.

Comal County

George Kruger's No. 1 Uecker, A. Gayetan Survey No. 198, located in southeast corner, is drilling at 100 feet.

Colorado County

National Oil Co.'s No. 1 H. T. Brandt, Freeman Pettus league, 150 feet to south line and 1,000 feet west of highway, is location.

Edwards County

McMan Oil & Gas Co.'s No. B-1 Walter Schreiner, H.E.&W.T.R.R. Survey, Section 50, Block F, 330 feet to south and east lines, is fishing at 3,995 feet.

Frio County

Austin Johnson and others' No. 1 Eschenburg, E. Gallagher Survey No. 788, is a location 1,250 feet to east line and 1,625 feet to south line. Pilgrim Oil Co.'s No. 2 Blackaller, James Gouley Survey, is standing at 3,218 feet waiting on rock bit.

Fayette County

Marshall & Moore's No. 1 John A. Kerr, M. Muldoon league No. 5, about 250 varas to north line and little west of center, is shut down at 2,078 feet and will resume drilling soon. National Oil Co.'s No. 1 J. C. Melcher, S. M. Williams league No. 1, located 300 feet to north and east lines, is drilling at 250 feet. R. E. Phalon's No. 1 Cervenka, Fayette County School Lands, is drilling at 3,000 feet.

Goliad County

J. E. Alexander's No. 1 Bergman, Goliad Survey, Block 30, located 250 feet to west line and 900 feet to south line, is shut down at 600 feet. Booth McCarson's No. 1 E. V. Murray, Goliad Survey No. 3, is location 200 feet to west line and 150 feet to south line; No. 1 Flake, Goliad Townsite, is drilling. Southern Crude Oil Purchasing Co.'s No. 1 J. E. Pettus, near Cabeza Creek, is at 3,825 feet in hard sticky shale.

Gonzales County

Alexander & Smith's No. 1 Billings, G. Gwinn Survey, northwest corner, has derrick up and part of rig on the ground. Joe Bruner's No. 1 Miller, Richard Heath Survey, 3,040 feet to north line and 200 feet to east line, is preparing to resume drilling. Dunning & Pierce's No. 1 Keepers R. Ward Survey, is standing at 203 feet. W. D. Flynn's No. 1 Wilhausen, S. Bateman Survey, is at 4,800 feet moving on heavier rig to go 6,000 feet. W. G. Malone's No. 1 Staton, J. M. Salinas Survey, 375 feet to southwest lines and 1,275 feet to northwest lines, is shut down at 400 feet. L. P. Unkel's No. 1 Lumm & Bouldin, R. Ward Survey, Block 10, located 570 feet to center south line at 380 feet, is moving back heavier rig to resume drilling.

Hays County

Estess-Moore & King's No. 1 C. N. Sledge, Hunton & Jones Survey, 285 feet to northwest lines, is standing at 804 feet.

Guadalupe County

Pat Armstrong's No. 1 Halm, Wakefield Survey, has derrick up. G. A. Greene's No. 1 B. B. Dix, Ira Nash Survey, 610 feet to north line and 320 feet to east line, is drilling at 565 feet. J. J. Christie's No. 1 Taylor Thomas, Gustavus Chotwell Survey, 1,100 feet to southwest lines and 1,130 feet to southeast lines, is testing at 1,053 feet. Miller Brothers' No. 1 Gib Springs, E. Cortari Survey, 450 feet to west line and 775 feet to south line, at 1,977 feet has oil showing in chalk, set casing at about 1,950 feet. T. H. Poole's No. 1 C. Woehler, John King Survey, 310 feet to north line and 210 feet to east line, is getting ready to resume drilling.

Jackson County

J. B. Douglas' No. 1 C. O. Lowrance, John McHenry Survey, 720 varas to northwest lines and 3,700 varas to southwest lines, is shut down at 3,020 feet. The Texas Company's No. 1 W. C. Moore, I.&G.N. Survey No. 208, 5,108 feet to south line and 150 feet to west line, is drilling at 2,952 feet. Wright Brothers' No. 2 Classen is down 3,380 feet; No. 6 Drushell is being deepened.

Karnes County

W. E. Hewitt's No. 1 W. E. Porter, 6 miles south of Range has been spudded in.

Kinney County

Mardon Oil Co.'s No. 1 Jim Clamp, Survey 346, Section 1,492, is drilling at 2,508 feet in the upper part of the Edwards.

Maverick County

Ryan Consolidated Petroleum Co.'s No. 2 Indio, A. Rivas Survey, Section 7, is at 1,320 feet and will test gas showing. Rycade Oil Corp.'s No. 3 Chittim, Section 116, Block 7, is drilling at 928 feet; No. 3 Sullivan, Section 71, Block 7, is down 5,158 feet.

Medina County

California-Medina No. 1 Rothe, Survey 1,012, is shut down at 3,278 feet. Donaldson Oil Development Co.'s No. 1 Adams, Survey 25, located 160 feet to east line and 1,227 feet to south line, is drilling at 2,080 feet using night crew. North & South Development Co.'s No. 1 Charles Nehr, Survey 441, located 150 feet to south line and 7,479 feet to east line at 3,462 feet is sidetracking four fourbles of drill stem and with slight oil showing at that depth. Richardson's No. 2 Tom Bendele, 75 feet north of No. 1, is down 300 feet. Cecil Switzer's No. 2 Zerr is getting ready to spud in.

McMullen County

J. F. Locke's No. 1 Genser, J. T. Robbins, west central, is location.

Nueces County

Nueces River Basin Development Co.'s No. 1 F. C. Allen, G. Farrier Survey, 1,596 feet to south line and 474 feet to west line, is standing at 2,908 feet.

Refugio County

Blanco Creek Oil Co.'s No. 1 St. John, J. Scott Survey, 708 feet to northwest lines and 3,074 feet to northeast lines, is drilling at 1,800 feet. Dunlap & Wilkinson's No. 1 Rooke, 10 miles south of Refugio Field, is standing at 2,750 feet. J. M. Davis & Tom Horn's No. 1 Howard, Section 8, located 600 feet to north line and 2,640 feet to east line, at 1,957 feet is waiting for drill stem. Magnolia Petroleum Co.'s No. 1 Glenewinkle, J. Scott Survey, 330 feet to south and east lines, is drilling at 2,000 feet.

San Patricio County

C. I. Albertson's No. 1 Boscamp, W. R. Hazen Survey, Block 10, located 200 feet to center north line, is shut down at 1,420 feet. George B. Pickett's No. 1 Whitworth, NW NW Section 60, is standing at 3,250 feet.

Travis County

Flynn Brothers' No. 1 St. Edwards University is drilling with spudding machine. Mid-Kansas Oil & Gas Co.'s No. 1 P. Wolff, G. C. Jennings Survey, is location 150 feet to north and east lines.

Uvalde County

Pure Oil Co.'s No. 2 J. D. Smythe, G.C.&S.F. Survey No. 687, located 1,920 feet south and 265 feet east of No. 1, has been spudded in.

Victoria County

Houston Oil Co.'s No. 3 McFaddin is a location for deep test; No. 2 Dr. Allen Kyle is drilling at 950 feet. Humble Oil & Refining Co.'s No. 1 Kohutek is a location.

CANADIAN FIELDS

(Continued from Page 77)

The well has made as much as 200 bbls. a day since coming in some weeks ago, but the light crude production is not expected to hold up, and will later be drilled to the deep lime. Okalta's No. 1, LSD 1, same section, which in December averaged 364 bbls. a day of crude naphtha from the deep lime at 5,040 feet, is frozen, with production complete shut off; but is expected to clear itself the ice bridge supplying a form of "pressure." If it fails to clear itself, diamond drill will probably be Okalta's No. 3, LSD 9, same section, at 2,520 feet, in the top of an oil of the Dakota; it is straightening a 20 feet of crooked hole before drill into the sand.

Spooner Oils' No. 2, Section 24-3w5, in the deep lime at 5,080 feet, rigged up a diamond drill outfit and cleaning out before drilling into the lime. Casing was cemented in the top of the lime. Spooner's No. 1, LSD 12, Section 13-20-3w5, is reported making between 46 and 50 bbls. of light crude from the lime.

Illinois-Alberta Oils' No. 2, LSD 1, Section 12-20-3w5, is circulating oil in an effort to clear an obstruction 12 feet from the bottom of the hole. When this is done, casing will be lowered to the bottom at around 3,550 feet. Calmont Oils' No. 1, LSD 2, Section 1-20-3w5, is reported to have resumed drilling after installing separator and control head. The test previously was in the deep lime at 5,650 feet, but following three shots a bridge formed around 5,150 feet. This will be drilled through and a production test made.

McLeod Oil Co.'s No. 4, LSD 16, Section 1-20-3w5, is reported drilling at 47 feet in the deep lime at 4,200 feet depth. the wet gas flow is reported around 2,000,000 feet. McLeod's No. 3, same LSD has recovered part of the "corkscrewed" drilling rods lost in the hole several weeks ago, and is fishing for the remainder. The test is down 4,871 feet.

Commercial Production

Mayland Oil Co., LSD 10, Section 17-19-2w5, is in the Home sands at 4,81 feet with what looks like a fair commercial production of light crude. With 2,000 feet of greenish-amber crude in the hole, a bailing test is in progress, which yielded 180 bbls. in the first 18 hours. There is some gas, but not enough to flow the oil.

British Dominion Oil Development Corp.'s No. 2, LSD 6, Section 12-20-3w5, is drilling close to the lower McDougall-Segur sand at 3,520 feet, with 10-inch casing run to 3,425 feet to protect the upper sand. The first McDougall-Segur sand was 60 feet thick, as compared with a usual thickness of 30 feet; there is some oil in the hole.

Model Oils, LSD 8, Section 22-20-3w5, is drilling in the Kootenay formation at 3,220 feet, carrying down 10-inch casing behind the drill. The coal seam making the Dakota-Kootenay contact indicates that the deep lime may be reached around 4,200 feet; 8-inch casing will be carried down to the lime if possible.

Freehold Oil Corp.'s No. 1, SW, Section 3-21-3w5, has again rigged up and is cleaning out preparatory to starting new hole at 2,540 feet.

East Crest Oil Co., LSD 5-6, Section 16-19-2w5, is drilling at 3,334 feet after sidetracking lost tools. United Oils' No. 2, LSD 2, Section 24-20-3w5, is drilling in a hard formation at 5,180 feet. Freeman-Lundy Syndicate, LSD 10, Section 1-20-3w5, is drilling below 200 feet after setting 20-inch casing at 100 feet. Advance Oil Co.'s No. 5, LSD 16, Section 19-19-2w5, is drilling below 2,900 feet. New McDougall-Segur Oil Co.'s No. 2, LSD 14, Section 12-20-3w5, is drilling close to the bottom of its original hole at 4,500 feet, after cementing back several hundred feet to overcome caving.

Seneca Oils, Ltd., held its shareholders' meeting at Calgary recently when the following officers were re-elected: President and managing director, George H. Cloakey; vice president, Janes G. Gage; secretary-treasurer, F. Stapells; directors, Donald Morrison, R. D. Smith, O. S. Spence, and R. L. Hutchings. The company's test in LSD 1, Section 34-20-3w5, is shut down till spring at 4,930 feet.

Outwest Petroleums, Ltd., has been incorporated with capitalization of 1,000,000 no par shares and office at Calgary, to carry on oil development operations. It is understood the company will drill in the Turner Valley Field. The incorporators include Hugh L. O'Rourke,

Calgary; George L. Patrick, Stettler; F. A. Brown, Nanton.

Southern Alberta

Alberta Pacific Consolidated Oils, Ltd., of Calgary, will commence drilling in two sections of southern Alberta early this spring. The company carried on geological work and core drilling last season in the Milk River district and other areas, and the directors have decided to put down commercial tests in the Milk River area and in the Turner Valley Field. The company's holdings in various parts of southern Alberta aggregate more than 10,000 acres, including, Turner Valley, 240 acres; Sarcee Reserve, 160 acres; Jumping Pound, 400 acres; Williams, 853 acres; Wainwright, 320 acres; Monarch, 160 acres; Milk River, 2,040 acres; Coutts, 2,330 acres; Red Coulee, 1,000 acres; and Del Bonita, 1,960 acres. The company is amply financed for an extensive drilling program, its assets including $200,000 in cash and bonds, 150,000 shares of Home Oil Co. stock, drilling equipment valued at $15,000 and one-eighth royalty from any production in LSD 11, Section 20-19-3w5, close to the Home Oil Co. production. Alberta Pacific Consolidated's No. 1 test in the Turner Valley will be started at once in the NE, LSD 5, Section 20-19-2w5. The location in the Milk River district near the international boundary will be made by Dr. T. B. Williams; in the latter area production is expected around 2,700 feet, and drilling will be under turnkey contract at a price approximating $35,000.

Commonwealth Petroleums' will drill a test in LSD 7, or 8, Section 8-12-2w5, in the south end of the Turner Valley, just south of the East Crest and Mayland wells. This will be the southernmost test in the Turner Valley Field.

Weather conditions in southern Alberta this fall and winter have been unusually favorable for drilling, and the number of Alberta tests shut down has been smaller than usual. Most of the shutdowns are in isolated areas. In the far north, Von Weymarn Brothers' test on the Clearwater structure shut down for the winter at 500 feet; and in the Lesser Slave Lake area International Oils, Inc., discontinued operations over the winter; in this field International's No. 2 has been abandoned, and No. 3 will be started in the spring. In the south, Range Oil & Gas Co.'s No. 2 east of Coutts is shut down; and in the Turner Valley Field a few tests, mostly on the fringe of the field, have been inactive. The 17-mile road between Okotoks and Turner Valley, which is usually badly cut up spring and fall, has been in good condition so far, which has greatly facilitated operations, the normal heavy rainfall of early autumn having failed to materialize.

Moose Mountain

In the Moose Mountain district, Signal Hill Oil Co.'s No. 2, LSD 9, Section 34-23-5w5, is making new hole below 2,050 feet, after cementing cavings. Elbow Oil Co. is working on derrick in LSD 11, Section 35-22-5w5; the test will spud in as soon as possible. R. C. Paget is field superintendent.

An American syndicate is reported putting down six structure tests south of Keho Lake, near Carmangay, and if results are satisfactory a commercial test will be drilled.

On the Morley Reserve, Norcon Oil Co.'s No. 1 is reported getting ready to resume drilling. Norcon Oil Co.'s No. 2 is finishing derrick near Kew in Section 28-20-4w5, and will rig up for a diamond drill test.

In the Highwood district, southern foothills, Imperial Oil's No. 1 Highwood, LSD 3, Section 36-18-3w5, is drilling at 3,981 feet. In the Jumping Pound district west of Calgary, Imperial's No. 2 Bow River, LSD 11, Section 31-24-4w5, is drilling at 1,066 feet.

In Aldersyde district, Ranchmen's Gas & Oil Co., LSD 16, Section 13-20-29w4, is working on casing at 2,855 feet.

In the Skiff Field, southern Alberta, Imperial Oil's No. 3 Devenish, offsetting No. 1 discovery well, is drilling at 1,942 feet, the log corresponding closely with No. 1. Work has been carried on at a temperature of 35 below zero. Southwest of the Imperial-Devenish, Commonwealth Petroleums' No. 1 in the Milk River Field, LSD 9, Section 9-3-15w4, is at 1,002 feet and setting and cementing 15½-inch casing. Capitol Oil & Gas Co.'s No. 1, LSD 4, Section 4-2-12w4, is at 660 feet and fishing for a string of tools. On the Beaver Dome, Madison Oils, LSD 10, Section 24-2-11w4, is resuming drilling after cementing casing at 731 feet. In the Chin Coulee district, it is reported that Lethalta Oils, LSD 5, Section 33-8-18w4, shut down at 2,300 feet, will resume drilling.

West of Coutts, Ko-Top Oils, SE, Section 2-1-17w4, is reported working on derrick, and will spud in this spring. Machinery is being trucked from Medicine Hat.

In the Taber district, Winnipeg interests are reported to have secured considerable acreage, east of the Chin Coulee structure; and arrangements are being made for a test to start this spring.

In the Wildcat Hills near Cochrane, Frontier Oils, LSD 2, Section 9-27-5w5, is reported drilling at 865 feet after straightening a crooked hole.

Ribstone-Blackfoot

On the Ribstone-Blackfoot structure, Ribstone Oils' No. 2, LSD 5, Section 2-47-1w4, has resumed drilling at 1,080 feet after pulling and rerunning 10-inch casing, which will be carried down behind the drill. Meridian Oils, LSD 1, Section 16-45-1w4, which got a big gas production at 1,820 feet, is drilling through the cement plug and will test the production. The gas flow was originally estimated at 30,000,000 feet a day. The test may be drilled deeper for oil.

In the Wainwright Field, East Central Alberta, a number of derricks were laid flat by the recent storm. The outfits damaged included Hargal Oils, Emerald Oils, Wainwright Dome, and several others. As a result, drilling operations on several new tests will be delayed.

Reorganization of the Maple Leaf Oil Co. has been completed. The new company is capitalized at 300,000 shares, of which 75,000 are $1 par 6 per cent preference shares and 225,000 are no par common shares. The refinancing is to enable the company to develop additional gas production. Maple Leaf's No. 1, LSD 1, Section 24-45-8w4, supplies gas to the Wainwright Gas Co. for distribution in the town of Wainwright. A second test will be drilled this season.

LOUISIANA-ARKANSAS

(Continued from Page 72)

ing No. 8 Tensas, Section 2-20-4, at 1,530 feet. Stovall Drilling Co.'s No. 2 Etheridge, 316 feet south and east NW cor. NE, Section 22-20-4, set 12-inch surface string at 145 feet.

Ouachita Parish—Hatcher & Evans cemented 827 feet of 8-inch on No. 1 Hatcher, Section 21-19-4. LaDel Oil Properties made location 660 feet south and east NW cor. NE Section 6-19-5, for No. 46 fee. Magnolia Petroleum Co.'s No. 2 Morrison, Section 2-19-4, cemented 870 feet of 10¾-inch casing and is drilling at 900 feet; No. 1 United States, Section 18-19-5, is drilling at 850 feet. Ouachita Natural Gas Co.'s No. 5 Lieber, Section 4-19-4, is drilling at 2,010 feet. Palmer Corp.'s No. 5 fee, Section 24-19-4, is drilling at 1,200 feet. Pipes & Mack are rigged up on No. 2 Wright, Section 11-18-4, ready to drill. United Carbon Co. is drilling No. 3 fee, Section 6-19-5, at 2,047 feet.

Union Parish—Industrial Gas Co.'s No. 1 Hill is a new location 2,638 feet west and 1,320 feet south of the center of Section 9-20-3. United Carbon Co. cemented 8-inch at 772 feet on No. 1 Nichols, Section 6-20-3.

Red River Parish

Bull Bayou—Odell & Lawton's No. 4 Richardson, Section 25-13-11, inactive since setting 6⅝-inch at 2,495 feet last November, is drilling at 2,530 feet. C. H. Tuttle made location and has derrick up for No. 1 fee, 428 feet north and 200 feet east SW cor. NE SW Section 17-13-10.

Richland Parish

Carbon Gas Co. is rigging up on No. 1 W. T. Sartor, 1,980 feet north and 660 feet west SE cor. SW, Section 16-16-6, and has location for No. 1 M. L. McCoy, 3,168 feet south and 660 feet east NW cor. Section 8-16-6; No. 1 C. M. Noble, 660 feet south and 1,980 feet east of center of Section 21-16-6, and No. 2 W. T. Sartor, 1,980 feet north and west SE cor. SW Section 16-16-6. Community Oil & Gas Co.'s No. 1 Boise, Section 33-16-6, is drilling at 2,210 feet. Magnolia Petroleum Co. is drilling No. 1 D. R. Sartor, Section 21-16-6, at 2,202 feet; No. 2 J. Sartor, Section 16-16-6, tested dry again at 2,520 feet and is bailing for another test at 2,553 feet. Ouachita Natural Gas Co.'s No. 5 Pardue, Section 5-15-6, set 12-inch at 194 feet and 8-inch at 866 feet.

Webster Parish

Cotton Valley—Cotton Valley Syndicate's No. 19 Hope, Section 24-21-10, is drilling shale and anhydrite at 4,244 feet. Magnolia Petroleum Co.'s No. 4 Ira Cox, Section 23-21-10, is in hard lime at 3,487 feet; No. 6 Marshall is a derrick in the center of the SW SE Section 21-21-10, and No. 1 McCook & Hibbler, Section 22-21-10, is in sandy lime at 3,819 feet.

Sarepta - Shongaloo — Magnolia Petroleum Co.'s No. 3 H. M. Branton, Section 6-22-9, set 302 feet of 13⅜-inch surface casing and is drilling at 520 feet; No. 1 Denman, Section 1-22-11, is drilling at 2,066 feet.

ARKANSAS

Johnson County

Arkansas Natural Gas Corp. is drilling at 1,330 feet on No. 1 McPherson, Section 10-10-24; No. 2 Bynum, Section 12-10-24, is drilling at 485 feet.

Nevada County

Humble Oil & Refining Co. has rig up to drill No. 5-B Groves in Section 1-14-21; No. 2 Haynie, Section 6-14-20, is waiting on standard rig to pump from 2 feet of sand, total depth 1,150 feet; No. 2 Hein, Section 1-14-21, is drilling red shale at 2,552 feet.

Ouachita County

Smackover—J. E. Crosbie has derrick up for No. 1-A Primm, 400 feet south and 150 feet west NE cor. SW SW Section 24-15-16. Phillips Petroleum Co., deepening No. 20 Joyce in Section 33-15-15, is drilling at 2,805 feet. Simms Oil Co. is milling out casing at 2,420 feet on No. 1 Hildebrandt, Section 33-15-15, total depth 2,746 feet.

Union County

Champagnolle—O. W. Estes cemented 6⅝-inch at 2,835 feet on No. 1 Alice Gregory, Section 15-17-14, total depth 2,852 feet. J. W. Hooser has temporarily abandoned No. 4 Slade, Section 4-17-14, on account of salt water at 3,254 feet. H. L. Hunt is drilling No. 4 Gregory, Section 10-17-14, at 2,860 feet; No. 6 J. D. Gregory, Section 15-17-14, had a show of oil at 3,271-3,332 feet and is coring at 3,365 feet. Arkansas Drilling Co. (E. C. Johnson) is bailing No. 3 E. F. Gregory, Section 10-17-14, which filled up 1,500 feet in oil, total depth 3,783 feet. Lion Oil Refining Corp. is coring No. 5 Union Sawmill, Section 7-17-13, at 3,933 feet.

Magnolia Petroleum Co. is drilling No. 3 Alice Gregory, Section 15-17-14, at 2,005 feet. Ohio Oil Co. is drilling 6⅝-inch plug at 2,991 feet on No. 3 Carroll heirs, Section 6-17-13, total depth 2,995 feet; No. 2 Frazier, Section 6-17-13, set 10-inch at 178 feet and is drilling at 693 feet; No. 1 Nash, Account 3, Section 6-17-13, is coring at 3,004 feet; No. 1 Raulston is a new location in the SE cor. NE SE Section 12-17-14. Pure Oil Co. set 3,256 feet of 6⅝-inch on No. 6 W. E. Gregory estate, Section 15-17-14, total depth 3,261 feet.

El Dorado—Gulf Refining Co.'s No. 2 Gaddy, Section 30-17-14, is drilling at 1,304 feet and No. 1 Woodley, Section 6-18-14, cored red shale at 3,292 feet. Louisiana Iron & Supply Co. is arranging to pump No. 10 Fitzgerald, Section 8-18-15, total depth 2,190 feet, with the bottom in 58 feet of broken sand.

EAST TEXAS

Panola County

Eureka Natural Gas Co. is drilling No. 1 Becknell in the Elijah Williams Survey at 2,629 feet. S. H. Gardner's No. 4 G. E. Brumble, B. C. Jordan Survey, is drilling at 2,680 feet. Magnolia Petroleum Co. Set 13⅜-inch surface pipe at 195 feet on No. 2 T. C. Adams, E. Jones Survey; No. 3 Lula Fletcher, B. C. Jordan Survey, is a derrick; No. 13 Carrie Steele, B. C. Jordan Survey, was dry at 2,652 feet; tested 3,000,000 feet of gas in 10 feet of sand and set 6⅝-inch at 2,658 feet, total depth 2,662 feet; No. 15 is a rig. Natural Gas Producing Co. is drilling No. 8 Roquemore in the B. C. Jordan Survey at 1,650 feet.

LA.-ARK. WILDCATS

(Continued from Page 72)

ship 16-17, 5 miles northwest of Lisbon production, and have location for a 3,000-foot hole in the NW SE Section 8, and Smith & Genther have 1,000 acres between this 700 and Lisbon which they are trying to turn with a drilling obligation for a 3,000-foot hole.

Lawson and others of Shreveport, have a block of 8,000 acres in Township 14-16, Township 14-15 and Township 13-15, south Keatchie in DeSoto Parish, they are trying to turn with a 3,000-foot hole as a requirement. Julian and others of Monroe are assembling 2,000 acres in the NW cor. of Township 16-10, Franklin Parish, 5 miles south of Delhi.

Pure Oil Co. has become interested in Rainbow Oil Co.'s proposed wildcat on the Louisville Cooperage Co. land in Section 33-22-8, Morehouse Parish, and is understood to have put up some dry hole money to help it along. Pure has approximately 2,500 acres in the immediate vicinity of the location which a well would help demonstrate.

In Mississippi

Territory in Hinds, Rankin and Madison Counties, around Jackson, Miss., is the scene of a great deal of more or less sudden activity which, while leases are in general 5 or 10-year commercial, is expected to be followed during the year by drilling. Gulf Refining Co. has taken approximately 12,000 acres to date on 10-year commercial lease, paying a small amount with a still smaller renewal west, north and northeast of Jackson in Townships 6 and 7, Ranges 1 and 2e and 1w.

Ohio Oil Co. is taking a spread in the Ganzel Block in Townships 4 and 5, Ranges 1 and 2e, and is buying additional protection around the edges of the block. Pure Oil Co. has 1,750 acres, the Sun company is buying, W. J. Hoddy has 500 acres and H. P. Lee has assembled 8,000 acres in Townships 7 and 8, Ranges 1 and 2e, and is still buying. Weiss & Steel have assembled a block of 20,000 acres near Midnight, centering in Section 30-14-3w, and are rigging up in the NW cor. Section 30 for a 2,500-foot well. Jackson is located on the peak of a magnetometer "high."

Atlantic Oil Producing Co., drilling for itself and The Texas Company set 460 feet of 12½-inch casing this week on No. 1 Houston in Section 30-11-6, Sharkey County, and two other wells are getting under way in Hinds County. Arkansas Natural Gas Corp. is arranging to set a string of 8¼-inch at 2,729 feet on No. 1 Rye, Section 22-15-17, Monroe County, preparatory to deepening to 4,500 feet. The well made about 4,000,000 feet of gas on completion in November, 1927, but was drowned out not long after by salt water.

W. P. Wallace's completion of No. 1 Ashley in Section 15-16-10, as a gas well variously estimated at from 8,000,000 to 20,000,000 feet, total depth 2,005 feet, was the cause of more or less interested comment. It is in old territory proved six or eight years ago by Lakeside Oil & Gas Co., but salt water took its wells not long after completion and gave the country something of a black eye. Consequently the Ashley is in the nature of a comeback, particularly because of its showing for such capacity. It has not been thoroughly gauged for either pressure or volume but rocked up 800 pounds in a minute and a half, according to Conservation Department authority, which also placed the 20,000,000-foot estimate on its volume, though it is recorded as an 8,000,000-foot completion. J. E. Crosbie's semiwildcat on the north edge of Smackover in Section 24-15-16, No. 1

Canada, made 15 bbls. from 2,055 feet the first 24 hours it was on the pump. Bert Longenheim and others' wildcat on the Lawson Moore Survey in Red River County, Texas, was abandoned as a dry hole at 1,065 feet.

NORTH LOUISIANA

Bienville Parish

W. P. Wallace, immediately following completion of No. 1 Ashley in Section 15-16-10, made location and has rig up for No. 1 State in Section 16-16-10.

Bossier Parish

Arkansas Natural Gas Co.'s No. 1 Tidwell, Section 29-22-11, is drilling at 2,580 feet.

Caddo Parish

D. C. R. Oil Co. is drilling No. 1 Hunter, Section 17-19-14, at 500 feet.

Claiborne Parish

Dixie Oil Co.'s No. 1 Gilbert, Section 27-21-5, is in shale at 4,900 feet.

DeSoto Parish

Benedum & Trees Oil Co. has derrick up for No. 1 Nicholson, 733 feet north and 300 feet SW cor. Section 2-15-14, and is shut down at 2,930 feet on No. 1 State, Section 22-14-12, waiting on fuel. Carleton Drilling Co. set 6⅝-inch at 1,178 feet on No. 2 Stevens, Section 12-11-16, and is bailing casing. R. O. Roy is drilling No. 1 Sample, Section 1-13-14, at 550 feet. Rudesaele and others' No. 2 Nabors, Section 6-12-11, tested dry and is waiting orders at 1,241 feet. Thorn Oil Co.'s No. 1 Burford, Section 22-14-14, is drilling at 2,020 feet. Warren & Carruthers' No. 1 Ramsey, Section 33-13-16, is drilling at 2,760 feet.

East Carroll Parish

Palmer Corp. tested salt water in the top of the Nacatoch at 2,405 feet on No. 1 Mitcheson, Section 8-19-11, and is drilling at 2,448 feet.

Franklin Parish

Davis and others are drilling shale at 1,185 feet on No. 1 Moore, Section 12-11-6.

Lincoln Parish

V. E. Shaw and others are drilling No. 1 Voss, Section 1-20-3, at around 200 feet.

Monroe District

Morehouse Parish—Woodley & Collins have a rig up for No. 1 Harp, to be a deep test in Section 22-22-7.

Ouachita Parish—Phillips and others' No. 1 School, Section 16-16-4, is shut down for orders, total depth 3,300 feet.

Natchitoches Parish

Robeline Oil & Gas Co.'s No. 1 Cassady, Section 7-8-9, shut down at 1,100 feet since August 30, has resumed drilling and is in gumbo at 2,190 feet, claiming gumbo for the last 600 feet.

Richland Parish

Richland Operating Co. cemented 6⅝-inch at 2,272 feet on No. 1 Chapman, Section 19-16-7.

Sabine Parish

R. L. Gay is drilling No. 2 Bowman-Hicks, Section 14-7-14, at 1,200 feet and cemented 8¼-inch at 2,080 feet to test 8 feet of limy sand in No. 1 Sabine Lumber Co., Section 13-7-14, total depth 2,133 feet.

ARKANSAS

Ashley County

Atlantic Oil Producing Co. is arranging to deepen No. 1 Bledsoe in Section 20-15-7, dry and abandoned at 2,554 feet. The Texas Company set 12½-inch at 450 feet and is drilling at 640 feet on No. 1 Keifer, Section 11-18-4.

Bradley County

Ohio Oil Co.'s No. 2 Southern Lumber Co., Section 19-16-6, is drilling at 3,016 feet.

Drew County

Ohio Oil Co. has the rig up for No. 1 Jerome, Section 13-15-4.

Logan County

Arkansas Natural Gas Corp.'s No. 1 Parks, Section 26-8-24, is shut down for orders, total depth 3,609 feet.

Miller County

E. A. Martin is coring No. 4 Dale, Section 23-15-26, total depth 2,985 feet.

Ouachita County

J. E. Crosbie cemented 6⅝-inch at 2,045 feet on No. 2 Canada, Section 24-15-16, total depth 2,061 feet. Flaucher and others have made location 810 feet east and 200 feet south NW cor. NW SE Section 7-15-17, for No. 1 Buck. Charles McDonad has rig up for No. 1 Wilson in Section 25-15-18. Sam Sklar set 185 feet of 10-inch surface pipe on No. 1 Langley, Section 19-15-15.

Union County

Bell and others' No. 1 Terrell, Section 27-18-14, is drilling at 775 feet. T. J. Bush, trustee, has location 330 feet south and east NW cor. SW Section 11-17-18, for No. 1 McDonald. Calgo Oil Co.'s No. 1 Primm, Section 25-18-15, is in sticky shale at 2,766 feet. E. L. Foster's No. 1 Murphy Land Co., Section 22-17-17, is shut down at 610 feet. J. O. Moore made location 300 feet south and 200 feet west NE cor. NW SW Section 11-18-12, for No. 1 Union Saw Mill Co.

EAST TEXAS

Shelby County

Chapparall Oil Co.'s No. 2 Holt in the Matthew Moore Survey is shut down at 3,004 feet in shale, waiting orders. Gulf Refining Co.'s No. 1 Carraway in the J. H. Patterson Survey is drilling at 1,970 feet.

MISSISSIPPI

Hinds County

Big Black Oil Co. is building derrick for a well in the SE cor. NE NW Section 30-6-4. Hennese and others' No. 1 Riverside, Section 23-16-5, is rigging up.

Monroe County

Arkansas Natural Gas Corp.'s No. 1 Rye, Section 22-15-17, is arranging to set 8¼-inch casing at 2,729 feet, corrected depth.

Sharkey County

Atlantic Oil Producing Co. cemented 12½-inch at 624 feet on No. 1 Houston, Section 30-11-6.

ALABAMA

Washington County

Oscar Brown set 10-inch at 460 feet on No. 1 U. S. Land & Cotton Co., Section 26-3-3, and is drilling down. S. R. Hobson is drilling No. 1 Hobson, Section 9-8-2, at 260 feet and is shut down at 400 feet on No. 1 Wilson, Section 27-7-1w, for boiler repairs.

GULF COAST FIELDS

(Continued from Page 75)

sands recently found productive in this company's Nos. 1 and 2 Morris. No. 3 Morris is 100 feet from the west line and 245 feet from the north line of the W. T. Charles Survey. No other deep holes except those named, have been drilled in this sector.

The Texas Company's No. 22 House in the north part of the field is drilling sticky shale at 3,649 feet. This company's No. 14 Koehler, a former producer being deepened, is in gumbo, shale and boulders.

Nash Dome—Fort Bend and Brazoria

Rycade Oil Corp. and Humble Oil & Refining Co's No. 1 Wisdom, south side of the dome, tested salt water at 5,158 feet and is being drilled deeper at 5,229 feet in sand and shale. This is a wildcat 800 feet south of the nearest test before drilled on that side of the dome. Rycade's No. 24 Wisdom is drilling hard lime at 4,161 feet. No. 21 Wisdom, a former 1,000-bbl. well at 4,188 feet, is pulling screen to deepen.

Pierce Junction—Harris County

Two tests on opposite sides of the Pierce Junction Dome were the centers of interest as the week closed. One, Superior Oil Corp.'s No. 4-B Settegast, a wildcat on the south flank, found a sand showing heavily of oil at a total depth of 3,921 feet. Casing has been cemented to test. If it is a producer, it will open the first production on the south side of the dome. It will have to be offset by Pure Oil Co., which so far has been inactive at Pierce Junction.

The other test is Abercrombie & Harrison's No. 3 Ritter, which was to have drilled out 6⅝-inch plug at 4,598 feet Saturday night to test sand at 4,610-32 feet. It will mark an important extension of deep production on the north side of the dome.

On the northeast side of the dome, T. G. Shaw-Texas Exploration Co.'s No. 2-D Fitzsimmons went into heaving shale and was abandoned at 4,300 feet. This is on an adjoining tract from these operators' No. 3-E Fitzsimmons, which was completed Friday flowing initially 1,250 bbls. of 33 gravity (at 56 degrees) pipe line oil daily at 4,425 feet. This was on a three-eighths-inch choke. Both are semi-wildcats.

Navarro Oil Co.'s No. 3-A Cain, east side, is drilling shale and lime at 5,767 feet. This company, jointly with Texas Exploration Co., has made location for No. 14 Dooley on the tract which has yielded one of the field's most consistent producers. Gulf Production Co.'s No. 7 Cain so far has not made a successful completion. It was brought in earlier in the week at 4,575 feet flowing at the rate of 1,500 bbls. daily for a few hours but sanded up. Saturday it had been cleaned out and was washing. Gulf's No. 2 Fitzsimmons-Hamman is drilling below 4,023 feet, and its No. 27 Taylor at 3,276 feet.

On the west side, Rio Bravo Oil Co.'s No. 13-A Settegast is drilling sand and boulders at 1,378 feet. This company's No. 6-A Settegast, a former well drilling deeper, is in sticky shale at 4,640 feet, and No. 9-A Settegast, also a former well, is cleaning out hole to deepen. No. 12-A Settegast is standing a location.

Anderson & Plummer's No. 2 Whitehead, former north side producer, is drilling deeper at 4,940 feet.

Goose Creek—Harris County

Humble Oil & Refining Co.'s No. 74 Simms-Smith, a wildcat northeast of the field, is drilling sticky shale at 6,745 feet. It already is the deepest test at Goose Creek and is approaching the record depth ever drilled anywhere on the coast. Gulf Production Co.'s No. 13 Paddoc-Smith is drilling at 3,492 feet. This company is rigging up to deepen No. 8 John Gaillard fee, a former well. Atlantic Oil Producing Co.'s No. 20 Gaillard, (21 acres) is drilling deeper at 1,722 feet.

Hardin County Domes

Ada Belle Oil Co.'s No. 125 McGoldrick Stateland, Batson, is down 827 feet and should be in the shallow pay shortly. East Baston Oil Co.'s No. 17 Stateland is drilling at 1,022 feet. B. O. Poole's No. 1 Paraffine is drilling at 318 feet.

Elberts and associates' No. 4 Herbert, Sour Lake, a former well to be deepened, is sidetracking at 1,900 feet. South Texas Petroleum Co. has made location at Saratoga for No. 1 Baker in the J. B. Reeves Survey.

Spindletop—Jefferson County

Yount Lee Oil Co.'s No. 53 McFaddin is drilling shale and lime at 4,821 feet. No. 89 McFaddin is fishing at 3,825 feet. No. 90 McFaddin is drilling rock at 2,706 feet, No. 91 is in sand and lime at 3,327 feet and No. 92 is in gumbo at 1,450 feet. No. 93 is a derrick. No. 1 Davis is delayed by a fishing job after drilling to below 6,400 feet.

Yount Lee Oil Co.'s No. 21 Gladys City tested salt water at 4,100 feet and preparing to drill deeper. No. 74 Gladys City is drilling sand at 3,528 feet. No. 75 is in sand at 2,110 feet, No. 76 in gumbo at 1,356 feet, and No. 77 in gumbo at 1,661 feet. No. 78 is a derrick.

On the east side of the old field, J. H. Sutherlin has taken over the Longhorn tract and is rigging up for the second test there.

Hull—Liberty County

Gulf Production Co.'s No. 68 Phoenix, an old well being deepened, is drilling below 3,949 feet. No. 92 Phoenix is sidetracking at 2,712 feet after drilling to below 3,050 feet. No. 25 Morris-Phillips has spudded in. Humble Oil & Refining Co.'s No. 3 Hooks-Spell, a former well, is drilling at 3,057 feet. Mecom Oil Co.'s No. 10 Taylor is standing a rig. Republic Production Co.'s No. 25 Dolbear is drilling at 4,161 feet, and its No. 53 Dolbear at 2,442 feet.

Liberty—Liberty County

In the new shallow sand area, Gulf Production Co. has started drilling in two more tests, No. 7 and 8 McLean and has a derrick up for No. 9. No. 5 McLean is being rigged up to pump as is Sun Oil Co.'s No. 24 Mitchell. Sun's No. 29 Mitchell is in an oil sand at 1,505 feet. Its Nos. 31, 32 and 33 are drilling near the sand and Nos. 34 and 35 are rigging up. No. 36 is a location. The Texas Company's No. 18 Staiti is fishing a bit at 702 feet. No. 19 Staiti is drilling sand and boulders at 629 feet. Painter Oil Co.'s No. 1 Turner tested salt water at 811 feet and has been shut down. Liberty Petroleum Co.'s No. 2 Turner is standing at 1,512 feet. Empire Gas & Fuel Co.'s No. 1 Goggan is drilling at 2,156 feet.

In the flank sand district to the east, Yount Lee Oil Co.'s No. 14 Mitchell is drilling sand at 3,056 feet, and a derrick is up for No. 15. Sun Oil Co.'s No. 26 Mitchell is drilling below 3,000 feet.

Navarro Oil Co. has taken over the Baldwin tract in the old South Liberty Field and has made location for No. 1. The Texas Company's No. 3 Pickett on the northwest side of the dome is drilling gumbo at 2,048 feet. In that same sector, Trinity Oil Co. has made location for No. 1 Pickett. Vacuum Oil Co.'s No. 1 Trinity River, which has been waiting for high water to recede before starting drilling is expected to spud in early this week.

Orange—Orange County

Sun Oil Co.'s No. 6 Brown has been abandoned in heaving shale at a total depth slightly below 6,100 feet. Brownie-Babbett Oil Co.'s No. 5 McLean is sidetracking at 3,618 feet. Continental Oil Co.'s No. 14 Chesson is sidetracking at 2,992 feet. Gulf Production Co. also is rigging up to deepen its No. 11 Peveto.

Lockport—Calcasieu Parish

Vacuum Oil Co.-Gulf Refining Co.'s No. 22 Miller was setting screen late Saturday to test an oil sand at 4,339 feet. No. 23 Miller, which experienced a small blow out two weeks ago, is preparing to drill deeper. Its present depth is 3,114 feet. No. 13 Miller, an old well to be deepened, is milling out of the casing at 4,206 feet. The former total depth was 4,405 feet. Shell Petroleum Corp. has a rig up for its No. 1 Miller to the north of Vacuum's leases. Vacuum-Gulf's No. 4-A Farquahar is coring at 4,435 feet. No. 1 Henshaw-LeMoin is drilling at 5,572 feet. No. 5 Bayou-D'Inde is driving piling for a derrick.

Hackberry—Cameron Parish

Calcasieu Oil Co.'s No. 4 Watkins, East Hackberry, a former producer deepened to 3,966 feet, tested salt water Friday and is to be deepened further. A derrick is being built for No. 13 Watkins.

On the north side of the old Hackberry Dome, Rycade Oil Corp.'s No. 1 Gulf Land tested salt water at 4,319 feet. Screen is being pulled to deepen. Cameron Oil Co.'s No. 1 Vincent, south flank, is drilling at 3,463 feet. Noble Oil & Gas Co.'s No. 3 Ellender is drilling sand at 2,000 feet. Sutton and associates' No. 1 Sonnier is drilling rock at 2,235 feet. Yount Lee Oil Co.'s No. 1 Perkins is drilling gumbo and lime at 3,300 feet and the latter's No. 1 Vincent is down 700 feet where surface casing has been set. Cameron Oil Co.'s No. 2 Duhon, whose completion as the first commercial well on the old Hackberry Dome started this drilling activity, is running tubing after stopping flowing. Cherokee Oil Co.'s No. 1 Duhon is rigged up.

Jennings—Acadia Parish

Gulf Refining Co.'s No. 36 Jennings Clemont is drilling sand at 3,180 feet. Jennings Petroleum Co.'s No. 2 Eunice Crowley has cleaned out hole after having drill stem stuck and now is drilling deeper from 3,690 feet. E. F. Simms has rig up for No. 2 Cockrell. His No. 1 Grace Vonschuler is drilling below 4,930 feet. Abshire-Bolyard Oil Co.'s No. 4 fee is being rigged up to work over. Yount Lee Oil Co.'s No. 6 Housierre-Latrielle is drilling sand at 5,250 feet. No. 4 Crowley is rigged up.

Edgerly—Calcasieu Parish

Rex Petroleum Co.'s No. 9 Hunter is drilling at 3,506 feet. Drysdale & Savoy's No. 3 Hillhad set strainer at the close of the week and was being bailed. It is in a sand at 3,145 feet.

Vinton—Calcasieu Parish

Gulf Refining Co.'s No. 47 Star-Vincent has been delayed by a fishing job with drill stem stuck. Total depth is around 3,632 feet. Marrs McLean's No. 12 Gray is drilling at 947 feet. Vinton Petroleum Co.'s No. 1 Matilda Gray is drilling at 2,332 feet. This company's No. 10 Vincent tested salt water at 2,347 feet and is to be deepened. Salt

Dome Oil Co.'s No. 1 Shaw is awaiting a pumping rig. It is at 2,938 feet.

Miscellaneous Fields

Sinclair Oil & Gas Co.'s No. 20 Jackson, Damon Mound, Brazoria County, has been abandoned in heaving shale at 3,882 feet. It was an old well deepened. This company's No. 5 Norton, same dome, is drilling sandy shale and lime at 3,912 feet. At Markham, Rycade Oil Corp.-Humble Oil & Refining Co.'s No. 4 Hudson is drilling sandy lime and shale at 2,705 feet. Gulf Production Co.'s No. 18 Moore Orchard, Fort Bend County, is drilling gumbo at 1,160 feet.

A. G. Broussard's No. 1 Bergeron, Anse La Butte, St. Martin Parish, is rigged up to deepen. It formerly was abandoned at 1,368 feet. Yount Lee Oil Co. is to drill another test at Anse La Butte. This to be its No. 4 Louisiana Petroleum Co., for which derrick is being built. Rycade Oil Corp.'s No. 3 Atchafalaya fee, Bayou Bouillon, is drilling sand and shale at 4,465 feet. No. 6-C Bouillon fee is being rigged up, as is No. 3 Louisiana State. Material also is being moved in for a derrick for No. 8 Bouillon fee. Gulf Refining Co. is rigging up for No. 11 United Land Co., Sorrento Dome, Ascension Parish, a location which has been standing since last October. A location has been made for No. 14 United Land Co. Gulf Refining Co.'s No. 5 Lutcher Moore, Starks, Calcasieu Parish, is cleaning hole to deepen. It is a former well originally completed at 4,796 feet. No. 6 Lutcher-Moore, another former well, is drilling deeper at 4,450 feet, and No. 11 Industrial at 4,358 feet. Union Sulphur Co. has abandoned its No. 733 fee, Sulphur Dome, drilled to a total depth of 6,104 feet. Pure Oil Co.'s No. 7 Yount Lee Oil Co., Sweet Lake Dome, is in a sand showing oil and gas at 4,595 feet and has set 8¼-inch casing. No. 8 Yount Lee Oil Co. is drilling hard sand at 3,912 feet.

Miscellaneous Wildcats—Texas

Brazoria County — Shell Petroleum Corp.'s No. 3 Reece, Allen Dome, is drilling hard, sandy lime at 3,204 feet. This company's No. 5 Allen is in hard, sandy lime at 4,401 feet and has cemented 8⅝-inch casing at 3,678 feet. No. 1 Random, completed the past week spraying a small amount of oil at 5,035 feet has stopped flowing again and is to be deepened. Empire Gas & Fuel Co.'s No. 2 Brock, Stratton Ridge, is drilling shale at 2,485 feet.

Chambers County — Gulf Production Co.'s No. 1 Wilborn, Hankamer Dome prospect, is reaming at 3,649 feet. Pure Oil Co.'s No. 2 Lost Lake, Lost Lake Dome, is drilling gumbo at 2,927 feet. No. 1 Mays, same dome, is in hard rock at 985 feet.

Fort Bend County — Gulf Production Co.'s No. 10 Trone, Long Point Dome, has been abandoned in gyp at 929 feet. South Texas Petroleum Co.'s No. 1 Hartfield, Needville, is waiting on casing cement to set to test a sand at a total depth of 4,996 feet.

Harris County—Baldwin and associates' No. 1 Kitzman, Cypress, is drilling gummy shale at 3,175 feet. Humble Oil & Refining Co.'s No. 1 Minnetex, Mykawa, is drilling sand at 5,258 feet. No. 5 Warren, Hockley, is drilling gumbo and lime at 1,510 feet. South Texas Petroleum Co.'s No. 1 Hicks, Almeda, is drilling gumbo at 1,280 feet.

Jackson County—The Texas Company's No. 1 Moore, north of Edna, is drilling shale at 3,077 feet. Wright Brothers' No. 2 Classen, Edna, is drilling shale at 3,494 feet. A derrick is up for No. 8 Drushell.

Jefferson County — The Texas Company's No. 1 Pipkin, Big Hill, is drilling sand and shale at 3,600 feet. Deep Test Oil Co.'s No. 1 McFaddin, Chaisson Survey, northeast of Spindletop, is drilling at 3,400 feet. I. W. Farhar and associates' No. 1 Rohwedder, Spear Survey, northeast of Beaumont, is drilling gumbo at 983 feet. Bleakie Oil Co.'s No. 1 Tolliver, northeast of Westbury, is in rumbo at 945 feet. Other wildcats in the county are shut down.

Liberty County—The Texas Company has made location for No. 2 Davis at Davis Hill. Union Exploration Co.'s No. 2 Esperson, C. W. Fisher Survey, was spudded Saturday. Humble Oil & Refining Co.'s No. 3 Sterling is in anhydrite at 2,979 feet.

Matagorda County — Crossland and associates' No. 1 Murphy, Shepherds Mott, is drilling hard sand at 2,651 feet.

Orange County—The Texas Company is rigging up for No. 1 Kuhn on the new dome discovered in the southwestern part of the county.

Waller County—The Texas Company is moving in a rig for a test on the Young ranch in the western part of the county. Two tests were drilled there and abandoned during 1928 by the late R. L. Young.

SOUTH LOUISIANA

Ascension Parish—The only work in this parish now is the rigging up of Gulf Refining Co.'s No. 11 United Land Co. at Sorrento Dome. Gulf has a location in Section 27-10s-2e, some distance west of the Sorrento Dome, but has not done any work there. The latter will be No. 1 Belle Helene Sugar Co.

Cameron Parish—The Shell Petroleum Corp.'s No. 6 Watkins, Black Bayou, is drilling sticky, sandy shale at 2,746 feet. No. 7 Watkins is rigged up. The Texas Company's No. 3-A Calcasieu Lake, Calcasieu Lake Dome, is standing a location.

Iberia Parish—Gulf Refining Co.'s No. 8-Z State, Loreauville, is drilling at 1,086 feet. Its No. 3 Kling is in shale at 2,577 feet. No. 1 Moresi is a derrick. The Texas Company's No. 3-A Vermillion Bay is drilling sand rock at 3,887 feet.

Iberville Parish—The Shell Petroleum Corp.'s No. 3 Wilbert White Castle, is drilling sticky shale at 2,178 feet. Standard Oil Co. is building derrick for No. 2 Wilbert, Bayou Blue. This company also has made location for No. 3 Wilbert. No. 1 Schwing is drilling below 1,100 feet. Union Sulphur Co.'s No. 3 Schwing, Bayou des Glaise, is drilling rock below 3,500 feet.

Jefferson Davis Parish—Vacuum Oil Co.'s No. 1 DeVilbiss, Roanoke Dome, is pulling tubing preparatory to deepening from sand at 4,200 feet. This company's No. 1 Earle, 3,680 feet west, is standing as a location.

Miscellaneous Parishes — Evangeline Oil Co.'s No. 1 Crowell-Spencer, Pine Prairie, Evangeline Parish, is drilling hard, limy shale at 4,578 feet. Gulf Refining Co. has a rig up for No. 9 Stark, Thibodaux, LaFourche Parish, and of interest during the week was the making of a location by this company on its new dome prospect at Rose Plaquemine Parish for No. 1 Morris & Rose, Section 26-21s-30e. The Texas Company's No. 1 Botney Bay, Point Barre, St. Landry Parish, is drilling sand at 3,457 feet. Other wildcats in South Louisiana are unchanged.

MICHIGAN FIELDS

(Continued from Page 80)

Section 8-10-16, Muskegon Township. Oil was struck from 1,910-18 feet and the well was to be tested for possible production before being deepened to the Dundee.

Nine wells in Muskegon Township were nearing completion in the Dundee and one was in the upper Traverse. Six were shut down and two were fishing.

Three new locations were announced for Muskegon Township: Swastika Oil & Gas Co.'s No. 2 Giles, SE SE Section 6-10-16; Cochran & Howard's No. 1 Durham, SE SW Section 16-10-16; and Boter Brothers' No. 1 Pappas, SE NW Section 4-10-16.

Ten new locations in Laketon Township were announced, of which six were made by the Johnson Oil Refining Co., which already has four wells drilling. The new locations are: Beaver Oil Co.'s No. 1 A. Peters, NE SE Section 12-10-17; Johnson Oil Refining Co.'s No. 1 A. Grotefeld, NE NE Section 12-10-17; No. 1 F. Cihak, NE NE Section 12-10-17; No. 6 Thompson, SW NE Section 12-10-17; No. 7 Thompson, SE NW Section 12-10-17; No. 8 Thompson, SW NW Section 12-10-17; No. 9 Thompson, SW NW Section 12-10-17; Acme Oil Co.'s No. 1 J. Dykstra, NW SE Section 12-10-17; Witt & Nelson's No. 1 Horton, NE SE Section 11-10-17; and Dixie Oil Co.'s No. 1 K. McLaughlin, NW SW Section 12-10-17.

Muskegon County Wildcats

Completion of the Sun Oil Co.'s wildcat in Dalton Township as a dry hole and the discovery of gas in the White River Oil Corp.'s wildcat drilling in the village of Montague were outstanding developments in Muskegon County.

The Sun well on the Grelewicz lease, SE NE Section 26-11-16, Dalton Township, struck the bottom salt water in the Dundee formation at 2,282 feet and has been plugged. The top of the Dundee was struck at 2,182 feet and it was cased at 2,173 feet.

Gas was struck in the Montague wildcat, SW SW Section 21-12-17, Montague Township, at 1,796 feet in the lower Traverse. As the hole filled with water from a flow encountered at 1,700 feet it was unable to determine how great the show would be until the well had been cased and bailed out.

Harper and Newman's No. 1 Flora Gordon Cook, NE NE Section 2-9-16, Fruitport Township, has been cased at 2,094 feet and will be drilled during the week. It is believed the Dundee pay sands will be struck within a few feet of drilling.

The Eureka Oil & Gas Co.'s No. 1 Featherstone well, SW SW Section 35-11-16, Dalton Township, was shut down at 2,018 feet but was expected to be completed in the Dundee within another week.

J. F. Carpenter's No. 1 on the property of Jens Jensen, SE NE Section 2-11-15, Cedar Creek Township, about 3 miles south of Holton, had a fishing job at 2,032 feet. The top of the Traverse formation was encountered at 2,008 feet.

The Shifting Sands Oil Syndicate's No. 1 fee, SW NW Section 20-11-15, also Cedar Creek Township, was shut down at 2,130 feet. It had a show of oil in the upper Traverse at 1,817 feet.

Two Muskegon County wildcats are rigging: L. C. Patterson's No. 1 Monette, SE SE Section 13-12-15, Holton Township, a mile south of Brunswick, and the General Land & Development Co.'s No. 1 Lamos, NE NW Section 24-12-18, White River Township, west of Montague.

The rig is up for the Cloverville Oil Co.'s No. 1 Born well, NE NE Section 12-9-16, Fruitport Township, near Cloverville.

Western Michigan Wildcats

Two new wildcat locations in Oceana County, which adjoins Muskegon County on the north, and one in Newaygo County, which lies immediately east of Muskegon County, constituted the principal development in western Michigan.

Edward DuVall, who completed his second dry hole on the property of Carrie Mears in Golden Township, Oceana County, started to move his rig to the Fiel property, SW NE Section 31-15-18, Golden Township, a mile east of the No. 1 Mears duster. Mr. DuVall stated he has only temporarily abandoned No. 2 Mears and may drill it to the Dundee. It was completed as a duster at 1,589 feet in the upper Traverse.

A rig was moved for a deep test by the Muskegon Oil Corp. and the five associated companies including the Dixie Oil Co. The location is on the property of Jerry Zarvel, SW SW Section 8-14-17, Shelby Township, Oceana County, 2 miles northwest of Shelby.

Drillers are having difficulty in getting a shut-off in the Muskegon Oil Corp.'s No. 1 Essenberg-Dreyer wildcat in Ottawa County, where casing is being run to a depth of 1,880 feet. It is the first deep test of the companies in Ottawa County and is in SE SW Section 13-5-16, Park Township.

The Kenyon Oil Co.'s No. 1 Gould, NW SW Section 24-9-10, Courtland Township, Kent County, has reached 1,550 feet.

Kelley Goldboss is 250 feet on his No. 1 Joseph Kluting wildcat, SW NW Section 10-8-13, Wright Township, Ottawa County.

The Sankey Oil & Gas Co.'s No. 1 Beem, NW SE Section 22-14-15, Newfield Township, Oceana County, had a fishing job at about 900 feet.

Paul Schulte's No. 1 Blanchard, SW SW Section 30-10-10, Nelson Township, Kent County, also was fishing for tools and a bailer at 2,485 feet.

The Lima Oil Corp.'s No. 1 Atwood, SE SW Section 6-11-13, Ashland Township, Newaygo County, is still shut down after striking oil and gas in the upper Traverse pay sands at 2,087 feet. It may not be drilled in until spring.

Four other western Michigan wildcat wells were shut down.

Pump Down Water

Five wells in that section of the Muskegon Field where a number of the wells were drowned out with salt water have come back and are now producing from 25 to as high as 100 bbls. a day. Four of the wells are being pumped, relieving the water pressure and allowing the oil to flow into the hole, and gas from the fifth has been turned into a near-by Traverse formation, resulting in a renewed flow of oil.

The Paragon Oil Co.'s No 1 Tripp, SE SE Section 5-10-16, is making about 100 bbls. of oil, but little gas. The Johnson Oil Refining Co.'s No. 2 Smith, SW SE Section 5-10-16, is making about 40 bbls. The gas flow has not been restored.

The McAfee-Refior Oil Co.'s No. 1 Anderson, NE NW, Section 9-10-16, is reported to be pumping some oil with water.

The Victor Oil & Gas Co.'s No. 1 Bensinger, NE SE, Section 5-10-16, opened and steamed, and flowed about 40 bbls.

Mount Pleasant Field

The fifth producing well in the Mount Pleasant Field and the second well in Isabella County, Michigan, came in this week and has flowed at the rate of about 125 bbls. a day although it is expected to increase to more than 200 bbls. a day when drilled deeper by F. W. Stork, trustee for a Saginaw syndicate. It is on the Coon lease, SE NE, Section 12-14n-3w, Chippewa Township, Isabella County.

The top of the Dundee formation was struck at 3,496 feet and the first show of oil was at 3,521 feet. The big pay began to show at 3,529 feet and the hole filled with oil in 10 hours at 3,545 feet.

The Pure Oil Co. immediately started a line to the new well, which is about a quarter of a mile northwest of the Chippewa Oil Co.'s No. 1 Jocelyn, SE SW, Section 12-14n-3w, the first producer in Isabella County.

The new producer is about 1½ miles northwest of the three wells drilled by the Pure Oil Co. State Geologist R. A. Smith has been quoted that the "Mount Pleasant Field promises to become the center of the next big oil development in Michigan."

Daily production of the Mount Pleasant Field will now be more than 500 bbls. of 43 to 44 gravity from the Dundee pay sands at about 3,550 feet. The three Pure Oil Co. producers are making about 300 bbls. a day and the Chippewa-Jocelyn well is making 150 bbls.. The Pure Oil Co. is getting the crude. It costs from $25,000 to $40,000 to drill to the first pay sand in the Mount Pleasant Field.

Four wells, none below 2,000 feet, are drilling. Three are Pure Oil Co. wells: No. 1 Sias, NW NE, Section 17-14n-2w, Greendale Township, Midland County; No. 1 Shirts, NW SW, Section 17-14-2, Greendale Township, Midland County; and No. 1 Reems, SE SW, Section 18-14-2. The other drilling well is the Consumers Power Co.'s No. 1, NE NE, Section 20-12-2, of the same township and county.

The Rockford, Ill., syndicate's No. 1, SE SW, Section 11-14-3, Chippewa Township, Isabella County, and the Chippewa Oil Co.'s No. 2 Jocelyn, SE SW, Section 12-14-3, same township and county, are getting started. Wells will be started on three other locations as soon as weather permits. Sias Oil & Gas Co.'s No. 1 McClintic, NW SW, Section 1-14-3; Leonard Oil & Gas Co.'s No. 1, SE NE, Section 11-14-3; and the Athens Oil Co.'s No. 1 Bufford, S half NW, Section 14-14-3.

Natural Gasoline Manufacture

STOCK POSITION STRONG DESPITE LARGE INCREASE IN PRODUCTION

Despite a large increase in production during the past year the natural gasoline industry, according to the latest available report of the Bureau of Mines, enjoys a strong statistical position so far as stocks are concerned.

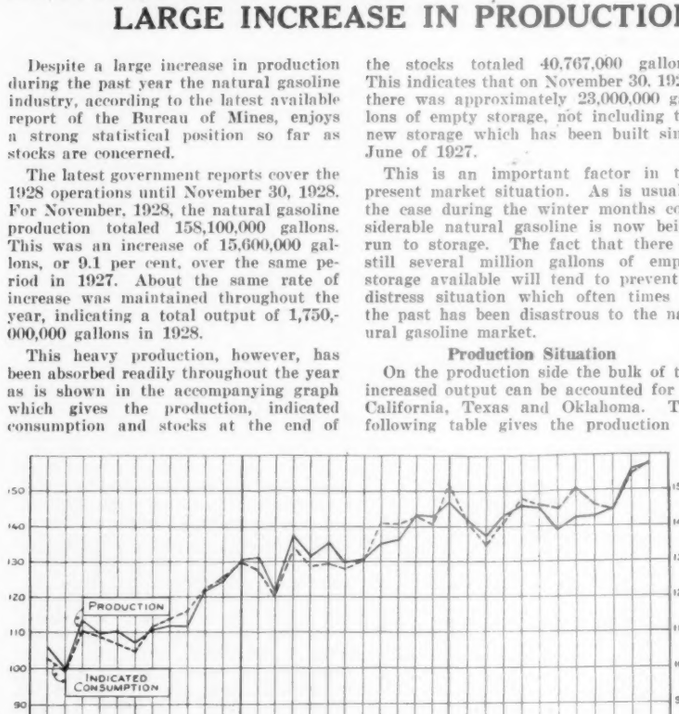
The latest government reports cover the 1928 operations until November 30, 1928. For November, 1928, the natural gasoline production totaled 158,100,000 gallons. This was an increase of 15,600,000 gallons, or 9.1 per cent, over the same period in 1927. About the same rate of increase was maintained throughout the year, indicating a total output of 1,750,000,000 gallons in 1928.

This heavy production, however, has been absorbed readily throughout the year as is shown in the accompanying graph which gives the production, indicated consumption and stocks at the end of the stocks totaled 40,767,000 gallons. This indicates that on November 30, 1928, there was approximately 23,000,000 gallons of empty storage, not including the new storage which has been built since June of 1927.

This is an important factor in the present market situation. As is usually the case during the winter months considerable natural gasoline is now being run to storage. The fact that there is still several million gallons of empty storage available will tend to prevent a distress situation which often times in the past has been disastrous to the natural gasoline market.

Production Situation

On the production side the bulk of the increased output can be accounted for in California, Texas and Oklahoma. The following table gives the production in



Natural gasoline production, indicated consumption and stocks in United States.

the month for the period extending from January 1, 1926, to November 30, 1928. The following table gives the data on which the graph is based for the first 11 months of 1928 (data given in thousands of gallons):

Natural Gasoline Operations in United States

Month—1928—	Prod.	(*)	(†)
January	141,000	140,700	31,077
February	137,700	134,419	34,358
March	143,900	142,900	35,358
April	145,700	146,118	34,940
May	145,900	146,875	33,965
June	139,300	146,063	27,202
July	143,200	150,094	20,408
August	143,700	146,700	17,408
September	145,000	144,085	18,323
October	155,200	156,635	16,888
November	158,100	158,010	16,978

*Indicated consumption. †Stocks end of month.

This table shows that over the greater part of 1928 there was a steady withdrawal from storage, reflecting a situation in which the increased demand more than offset the increased supply. Stocks on November 30, 1928, were approximately 50 per cent less than the total of 33,191,000 gallons on the same date in 1927.

The peak storage in the natural gasoline industry was on June 30, 1927, when November, 1928, and 1927 (production given in thousands of gallons):

Area—	November 1928	November 1927	Inc.
Appalachian	9,200	8,300	900
Ill., Ky., etc.	1,000	1,400	*400
Oklahoma	55,400	49,900	5,500
Kansas	2,200	3,100	100
Texas	30,400	27,500	2,900
Louisiana	4,800	3,900	900
Arkansas	2,600	2,800	*200
Rocky Mountains	3,900	2,900	
California	47,600	41,700	5,900
Total U. S.	158,100	142,500	15,600

*Decrease.

Production in all the areas increased with the exception of Illinois, Kentucky, etc., Arkansas and Rocky Mountains. Production in the latter area was endangered.

California leads the states with an increase of 5,900,000 gallons in November, 1928, over November, 1927. This increase comes from new plants and the enlargement of old plants in the Los Angeles Basin. The deep sand development of the Santa Fe Springs area was of special importance.

Oklahoma is second with an increase of 5,500,000 gallons in November, 1928. This increase comes largely from the Greater Seminole area, including the St. Louis district. Production has declined steadily in that section of the State during the past two years and for several weeks has exceeded 1,000,000 gallons daily.

Texas is third with an increase of 2,900,000 gallons for November. This increase is scattered in the Panhandle, North and Central Fields and West Texas.

MUST ISSUE PERMITS TO CARBON BLACK PLANT

SHREVEPORT, La., Jan. 28.—The formal decree overruling the Louisiana Department of Conservation's policy restricting carbon black producers to those operating under permits issued prior to passage of the special act of the legislature of 1924 has been entered in Federal Court for the Eastern District of Louisiana at New Orleans. In effect, it lets down the bars and the department must issue a permit for the manufacture of carbon black from natural gas in Louisiana to whoever seeks it.

The decree enjoins the department, or the State, from interfering with J. Smylie Herkness and associates in establishing a carbon plant in Morehouse Parish and was in accord with a decision of the United States Supreme Court reversing a previous order of the district court which denied an injunction sought by Herkness and sustained the interpretation of the conservation act by State officials who refused to grant Herkness a permit in 1925.

The first effect of the supreme court's decision was the organization of a company by Monroe and New Orleans interests to build a carbon plant in the Richland Parish field, the first in that district.

BARNSDALL BUILDING PLANT

The Barnsdall Oil Co. is building a natural gasoline plant of the oil absorption type in the Maud Pool in Seminole County. The exact location is in the NW SW SW Section 11-8-5. The capacity of the plant will be determined by the amount of gas available at the time the plant is completed, which will be about February 15.

The plant is the second built by the Barnsdall company in the Seminole area. The company has had a large plant operating in the Earlsboro Field (Section 15-9-5) for over a year.

Distillation Loss Highly Significant In Gasoline Tests

By R. A. Boyd
Columbian Gasoline Corp.

The loss during a standard distillation has more significance as to quality of the gasoline than the vapor tension, gravity tests, and initial boiling point.

Distillation methods are fairly well standardized and can be used with a feeling that a very close check will be obtained by the customer. A great many authorities claim that the distillation loss during a standard distillation is the best indication of the volatility of natural gasoline.

Distillation loss is the difference between 100 cc. and the sum of the distillation recovery and residue when the distillation is conducted according to standard methods. Care should be taken during a distillation to keep the bath of both the condenser and receiver between 32 and 34 degrees Fahrenheit for it has been determined that even with this low temperature and narrow range that some trouble has been experienced in getting check results on the same samples. It is much better to agitate the baths either by hand or some mechanical means to keep the temperature at 32 degrees Fahrenheit. Also, the receiver should be immersed in its ice water bath up to the 100 cc. mark on the graduate.

One of the greatest chances for error on a distillation is in the method of sampling. A sample for a distillation should never be taken from a petcock or valve as during the process of drawing the sample a major portion of the constituents which cause the loss evaporates.

Samples should be taken directly from the container in which the gasoline is contained by lowering the sample bottle into the liquid. With the following precautions distillation loss can be made

(Continued on Page 241)

MOVE ABSORPTION PLANT

One of the gasoline absorption plants of the Wilshire Oil Co. is being moved from Huntington Beach to Santa Fe Springs. The Wilshire company has considerable gas available in the latter field and the plant will be placed in operation before the end of the month.

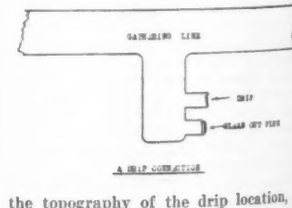
A PRACTICAL SUGGESTION

A DRIP CONNECTION

Uninterrupted plant operation, especially in winter months, is dependent in a measure at least to the collection and removal of condensates from the pipe lines. Not only water and gasoline in drip lines but in absorption plants using steam stills, the gas will tend to dehydrate the oil in the absorber and then it will be precipitated in cooler portions of the fuel gas system, causing no end of grief with the fuel gas consumers.

Often rust and scales collect in the drip connections, completely clogging them. This condition is worse with the smaller connections. The usual practice is to put a tee in line or weld in a collar for attaching the drip. The following described method is quite an improvement over the above procedure:

A leg the same size as pipe in line is welded in line at point where drip is to be installed. Its length will depend on



A DRIP CONNECTION

the topography of the drip location, but ordinarily will only extend about 14 inches from pipe. A collar is welded to leg near the bottom, and carries a plug; this serves as a clean-out plug and can be removed periodically. Another collar is welded to leg and provides a connection for attaching the drip proper.

Practical suggestions by those connected with the construction and operation of natural gasoline plants are invited. Payment will be made as soon as suggestions are accepted. Address all communications to the Natural Gasoline Department, The Oil and Gas Journal, Tulsa.

35 CENTS a line first insertion; 25c a line each additional insertion. Cash in advance.

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FIRST CLASS JOINT TURNER and all-around Oil Tool Machinist wants job; can go anywhere. Address Box C-768, The Oil and Gas Journal, Tulsa, Okla.

CALYX CORE DRILL EXPERT—15 years' experience; speaks Spanish and Portuguese. Willing to go anywhere. Tor O. Sjobom, 1611 Rose St., Berkeley, Calif.

WANTED—Position buying leases and royalties; thoroughly experienced; salary and commission basis. Best of references. Box C-773, The Oil and Gas Journal, Tulsa, Okla.

TRAFFIC MANAGER with long experience with leading Oil Well Supply Manufacturers, at liberty after March 1. Wants to locate in West or South. Willing to start at reasonable salary and let results care for future. Box C-752, The Oil and Gas Journal, Tulsa, Okla.

POSITION WANTED—11 years' experience as Clerk, Secretary and Treasurer, producing Company. Capable of handling office or field; 31 years of age. Former and present associates as references. Box C-771, The Oil and Gas Journal, Tulsa, Okla.

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PURCHASING AGENT with four years experience buying Oil and Gas and Natural Gasoline Supplies capable of handling Buying, Storekeeping, Traffic and Transportation Departments, will consider change to reliable and growing firm. Any place in Mid-Continent Field. Box C-770, The Oil and Gas Journal, Tulsa, Okla.

LEASES—PRODUCTION

WILL LEASE—160 acres close to Pecos Valleys Oil Co. well, North Pecos County, Texas. Owner, 1232 W. 45th St., Oklahoma City, Okla.

RED HOT

Lease W½ Sur. 208 Blk. D, Yoakum Co, Texas $5. Lease paid up 10 years and half royalty $15 per acre. Callahan and Jones County royalties. Drilling blocks.

W. HOMER SHANKS
Abilene, Texas.

I HAVE block acreage, structural and magnetometer high, Sedgwick County, Kansas, in the big play, Wright area, will sell or make drilling deal. G. W. Moore, Independence, Kansas.

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160 Acres highly diversified ranch surrounded with lands now leased to several Oil Companies. Priced at this time only slightly higher than its agricultural value.

FRED B. FOX
206 Cory Building, Fresno, California.

FOR SALE—New ten year oil leases, Townships 21, 22 and 23, Range 8, Garfield County, Oklahoma. Write for list. Box 493, Enid, Okla.

PONTOTOC AND COAL Counties Leases and Royalties. Drilling Blocks. Write us. Wilson and Lain, Ada, Okla.

FOR SALE—80 A. Oil and Gas Lease, SE of NE ¼, Sec. 33. SW of NW ¼, Sec. 34, T. 21, R. 37, Lea County, New Mexico. W. H. Carson, Eunice, N. Mex.

ATTENTION
LEASE BUYERS AND INVESTORS

We represent hundreds of California owners of New Mexico State Oil Leases in the trend of development and offer some wonderful buys in Lea, Eddy and Chaves Counties. Barnhart-Powers, 1404 Franklin St., Oakland, Calif.

SEMINOLE CO. new 5 yr. lse. NW¼ Sec. 4-10-6, drilling wells close. $62.50 per acre. Wm. Madgett, Hastings, Neb.

FOR SALE—Lea County, New Mexico, 40-acre lease, SW¼ NW¼, Sec. 34, Twp. 18s, R. 37e; $200 per acre cash and ⅛ royalty. Also 40-acre lease, SE¼ Sec. 25, Twp. 17s, R. 36e; $100 per acre cash and ⅛ royalty. R. B. Coyle, 2215 Beechwood Blvd., Pittsburgh, Penna.

LEASES—PRODUCTION

INVESTORS make money buying leases and royalties, Fisher County oil field. Several good buys. N. E. Porter, Royston, Texas.

FOR LEASE—160 acres, Reeves County, Texas. Block 6, Sec. 44, H. & G. & N. Railroad. Wm. Burger, 4761 Milentz, St. Louis, Mo.

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REAL ESTATE MEN AND AGENTS

WANTED—Agents, salesmen and real estate men to handle lots and acreage in the townsite of Chula Vista, Hot Springs County, Arkansas, on the U. S. Highway No. 70 near Hot Springs, which is a nationally known resort in the great mineral, oil and gas district of Arkansas. Millions being spent by Arkansas Light & Power Co. for a dam which will make a lake over 20 miles long. Chance for Silver, Lead, Zinc, Oil, Gas and other minerals. Oil test to be made on townsite. Lots $25 to $100 each. Write for maps and information.

Chula Vista Townsite Co.,
625 Central Ave.,
Hot Springs, Arkansas

BUY DIRECT FROM OWNERS in Southwest Texas, large Drilling Block, Paid-up leases, or Ranches in fee. On excellent structures. Geological and Engineer's Reports, Abstracts, etc., furnished responsible people free. Write us what you want.

..THE PETROLEUM TRUST CO.,
Travis Bldg.,
San Antonio, Texas

WILL SELL interest in settled producing lease paying 30 per cent on investment; no dry holes. Many proven locations to drill. P. O. Box 183, San Antonio, Texas.

FOR SALE—Leases, Oil Production, Asphalt, Limestone and Other Mineral Lands. W. P. Harley, Bowling Green, Ky.

FOR SALE—5 acres in Torrance Redondo Oil Field, $1,800.00 per A., Fred Hansen, 2063 Carson St., Torrance, Calif.

LEASES—PRODUCTION

I HAVE a lease on a 200 and a 160-acre tract in the Southern Kansas field which I will sell or will contract on shares. There are four producing wells on the tract at the present time. Sure locations for fifteen to twenty-five more wells. A nice gas field undeveloped. The two tracts adjoin. Address W. H. Bird, Elks Club, Junction City, Kansas.

WINKLER—PECOS COUNTIES
Leases and Royalties.
W. S. PATTERSON
Pecos, Texas.

LEASE—$50 per acre, SW¼ SW¼ Sec. 32-24-14, and NE¼ NE¼ Sec. 6-20-14, Tulsa County, Okla. Taylor-Rowe, Box 146, Owasso, Okla.

I AM in the market to buy Oil and Gas Leases and Acreage on good structures. W. W. Ogden, 1203 2nd Ave., Charleston, W. Va.

$3 to $5 per acre for West Texas land with Oil and Mineral right 40 acres up. New Mexico oil leases. Winter garden lots and truck farms on easy terms; agents wanted. A. Poe, 829 Wilson Bldg., Dallas, Texas.

LEA COUNTY, NEW MEXICO
Perpetual Royalties.
W. S. Patterson
Pecos, Texas.

WILL BUY New Mexico oil leases. Have for sale perpetual mineral deeds, under Major Oil Company leases, Lea County. Write MONARCH INVESTMENT COMPANY, Roswell, New Mexico.

MUSKEGON, MICHIGAN

OIL LEASES—31 acres also 12 acres near production, price reasonable; 4,000 Acres S. E. of field on structure, $1.00 per acre—6 months to drill. Full information gladly furnished and free about Michigan field. Wm. J. Wilson, 922 Majestic Bldg., Detroit, Mich.

BROKERS — If you want some real buys in well-located TEXAS oil leases, write LEASE SCOUT, P. O. Box 200, San Antonio, Texas.

OLD DUNBAR STRUCTURE: Decatur County, West Tennessee, located and mapped by H. D. Easton, one of the best Geologists in Southwest who says it is VERY PROMISING and advised drilling. Several major operators had best geologist to work this same structure and all highly endorse it as good. Standard of La., drilling on this structure: Our own well over 600 feet showing promising. If you want in on EXTRA GOOD PROSPECTIVE field we advise get this one. Choice acreage paid up five years at right prices. Write, wire or better come and see us quick. CHESTER COUNTY OIL CO., Inc., Henderson, Tenn.

SOUTHEAST NEW MEXICO

Leases, royalties and drilling blocks in Lea, Eddy, Chaves, Roosevelt, Curry, DeBaca and Guadalupe counties. Prompt, accurate service. F. S. Blackmar, Inc., Roswell, New Mexico.

ATTENTION, brokers and investors; Write for our list of oil leases and oil royalties in Pontotoc, Seminole and adjoining counties. Bowles and Smith, First National Bank Bldg., Ada, Okla. Phone LD35.

MUSKEGON OIL FIELDS

Choice leases; also large tracts open for drilling propositions. For reasonable prices and a square deal, write E. Bacon, 17606 Turner, Detroit, Mich.

STANLEY FEASEL CO., Bettsville, Ohio. LEASES FOR SALE adjoining Ohio and Mich. production. Prices right.

FOR SALE—40 acres, gas oil lease, Section 12, B-12, Winkler County, Texas. Northeast quarter. Two hundred dollars acre. John Loferski, 2253 S. Sacramento Ave., Chicago, Ill.

WINKLER, PECOS, WARD, Loving and Reeves Counties. Leases and Royalties. Hemby & Anderson, Box 633, Pecos, Texas.

Have lease off-setting shallow gas well. Will give half interest for well. Good market. Box 412, Muskogee, Okla.

LEASES—PRODUCTION

RECENTLY ACQUIRED approximately 7,500 acres on structure, T. 6 S., R. 15 W., Osborne County, Kansas; for sale or available for drilling contract. Golden Exploration Co., 538 First National Bank Bldg., Denver, Colo.

TEXAS
Leases and Royalties,
Drilling Blocks,
Central and Southwest Texas,
Gulf Coast.

In the play now—Bastrop, Caldwell, Guadalupe, Gonzales, Wilson Counties.

J. S. JONES,
Tel. Bldg. Phone 351.
LULING, TEXAS

DRILLING BLOCKS
10-YEAR PAID-UP LEASES

Sutton County, Texas, 6,880 acres, $1.50 per acre. Edwards County, Texas, 8,960 acres, $1.75 per acre. Schleicher County, Texas, 11,000 acres, $1.50 per acre. Favorable geological report. Offered subject confirmation. W. T. Doyle, Southwestern Life Bldg., Dallas, Texas.

FOR SALE—A 1,000-acre lease with 3 good producing oil wells near the center of the acreage, and 1 good gas well on the Northwest; 1 Star Drilling Machine and tools complete. Also one-half interest in a 100-acre lease with 5 wells, well equipped. Unlimited opportunities for development and more wells. This must be sold within 30 or 40 days. Excellent reasons for selling. Will stand fullest investigation. Address John Dillon, Rocky Branch, Kentucky.

ROYALTIES—PRODUCTION

WILL exchange royalties to increase my spread. Joe P. Crawford, Petroleum Bldg., Oklahoma City, Oklahoma.

40 ACRES ROYALTY under 80 acres, close to Oklahoma City Gusher. Slick, deep test drilling close. N ½ NW Sec. 32 Twp. 10N R. 1W. You can buy from one to forty acres for $100.00 per acre. 819 Petroleum Bldg., Oklahoma City, Okla.

PERPETUAL DEEDED ROYALTIES
Winkler, Loving, Ward, Lea, Pecos Counties. J. R. Haynes, Grantville, Kans.

WILL BUY small producing royalties or undeveloped royalties on good geology. Box 544, Dallas, Texas.

WILL SELL 4,500 shares Royalty Corporation stock for $1.25 per share. This stock at the above price will yield 1 per cent per month. Said company has just paid its 68th consecutive monthly dividend. Address Tom Hughes, P. O. Box 458, Dallas, Texas.

ROYALTIES, Winkler County, Texas. 40-acre tracts or section spreads. Harry Haynes, Grantville, Kans.

WANTED

ROYALTY — SPREAD

FROM

$1,000,000 to $3,000,000

PURCHASE

under development by major companies. Present income must exceed Two Hundred Thousand or more annually. If possible submit complete data with first letter.

SAM'L W. MELLON
Suite 940, 25 Broadway
New York City.

FOR SALE several small tracts producing "Royalty" priced from $750.00 to $6,000.00. Address W. M. Gallagher, Gen. Del., Tulsa, Okla.

STEP IN on Rising Market Lea Co. Royalties one-fourth Royalties as follows:

SE¼ Sec. 26-17-37 (Amerada Lease); S½ Sec. 25-17-37 (Vosberg & Roxana Leases); SW¼ Sec. 30-17-38 (Amerada Lease) for quick movement at $30.00 Base. Also, half Royalty SW¼ SE¼ Sec. 27-22-37 (Landreth Lease) $50.00 Base. Write George Graham, Lovington, N. Mex.

Additional Classified Wants on Page 241

Gasoline Reduced in Chicago Territory

Tank Wagon Down 1 Cent and Service Stations 2 Cents, Leaving 1-Cent Margin. Reduction From Normal Prices

By J. B. Waldo

CHICAGO, Jan. 28.—Effective tomorrow morning, Standard Oil Co. of Indiana will reduce tank wagon prices 1 cent and service station prices 2 cents over entire territory, leaving a 1-cent margin. Reductions will be made from normal prices, all cut prices being restored. Chicago prices will be 14 cents tank wagon, 15 cents service station.

The spot business was light in all products Monday morning, more demand being received for furnace oils than for gasoline, but no large movement in anything.

Furnace oils were in much better demand than gasoline and prices for distillates, gas oil and zero fuel oils are very firm. High gravities in fuel oils with a low cold test are scarce and very firmly held. The low price for a 28-30 zero oil was $1 today. The present situation here indicates that there will be no early decline in prices for these grades in spite of the lower costs of crude. Heavy fuel oils are also unchanged as to price and so long as the cold weather holds the zero oils, which are the only ones generally called for, will maintain their present quotations. Reports were received that a large refiner had made a 7½-cent price for its U. S. Motor gasoline in its St. Louis territory but the local office had no advices as to any change in this district. In the absence of any real demand prices are undetermined but several sellers stated that they would take business at 7 cents if offered them today although the usual price claimed as the market for Oklahoma gasoline here ranges from 7¼ to 7½ cents by other than the major refiners. One large refiner which has considerable high gravity gasoline in store is seeking business for the 375 and 360 endpoint at one-quarter cent below the recent quotations made by this office.

Weather Lessens Demand

The reduction in crude prices was the outstanding feature in this market last week. The gasoline demand was at the ebb of the season. The usual reduced consumption is intensified by very bad weather conditions. One large distributor which keeps a weather record states that while there have been Januaries with lower temperatures and deeper snows there is no record for so much bad weather during the month in any recent year. The greatest trouble is with the ice. Each cold wave has been preceded by rain and snow and a great many motorists leave their cars in the garage. The result has been a great decrease in consumption and gasoline is backing up on the refiners. Many distributors have asked that shipments be delayed as their tanks were so full they could not take in any more gasoline.

Effect of Crude Decline

The early result of the decline in crude was to unsettle further a badly mixed gasoline situation. The major refiners early in the week were in the mood to sit tight and to hold their spot price of 8 cents for U. S. Motor gasoline indefinitely. In all probability, any reduction they might make would not increase their sales to any extent. Still the sales managers here feel even now that they are badly out of line with the true market when in reply to their quotation of 8 cents they are told the buyer can purchase the U. S. Motor grade at anywhere from one-half to 1 cent below. Their usual argument is that the gasoline quoted at such low prices is not the equal in quality. Some of it is not but some samples shown are really high grade. A wired quotation from one West Texas refinery quoted a reseller as follows, "56 Navy, 6½ cents; 58 Navy, 6⅝ cents; 60 Navy, 6¾ cents." The trouble with the product from this refinery is that the gasoline is not uniform in quality and all of it has some objectionable odor but some shipments have not been so objectionable as to justify a rejection.

A case in point is that of a shipment made to a large distributor in a city in a nearby state. On receipt of the first tank car, the distributor called the seller, who was a local marketer, by phone and said very indignantly that he had told him not to deliver any Texas gasoline on his order. He was asked if he had tested the shipment and said he had not. He was told to run a test and if not satisfied the cars would be taken away. The next day the buyer called again and said it was as good gasoline as he had ever had, and he wanted to arrange to have nothing but the product of this refinery shipped him, as he was perfectly satisfied. The West Texas refiners are working hard to introduce their product. One refiner has opened an office and is making a thorough canvas for business. They are also laboring with the railroads to get a lower differential against shipments from the group and to establish quoted rates on through hauls to destinations not at present covered by the published tariffs. They state the roads are meeting them halfway and the progress already made is going to result in larger sales of refined products and more freight for the roads. A list of customers already sold included some of the large concerns with highest standing in the Middle West, so it will not do to undervalue the competition from the West Texas refiners either as to quality, price or vigor of competition.

Tank Wagon Speculation

As has been stated, the demand for gasoline was light all last week. The crude decline unsettled the minds of buyers and they cut their takings to a minimum and will reduce stocks to the lowest possible point as they feel there is every probability of a tank wagon change. So far there has been no intimation from the major distributors but the tank wagon price in practically all of the territory east of Indiana has been reduced and conditions generally are, in the minds of distributors, more favorable to a decline. The quotations to spot buyers during the first part of last week by large refiners were 8 cents for U. S. Motor gasoline, while other sellers were quoting equal quality of products at 7½ cents and occasionally at a little less. Gasoline was freely offered by some as low as 7 cents for which the claim was made that it was full Navy specifications, but while the initial and endpoint were within the range the gravity was low. Some had a very objectionable odor. One refiner is selling considerable quantities of a product which he calls naphtha with a gravity just under 55 degrees, a low initial and endpoint. The color is very good, better than 28 color and it has a sweet odor. The sellers state that the addition of 12 per cent absorption gasoline gives a perfect curve of the U. S. Motor grade and a very high class product with a high benzol equivalent.

The demand for absorption gasoline, as the dealers order their natural gasoline, indicates that a good deal of this product is being delivered and used by dealers over the territory. As to the cost of this gasoline refiners have stated that with a cracker they could run the gasoline at 3½ cents in the tanks and they allow one-half cent for overhead and 1 cent for selling costs, making their total cost 5 cents per gallon. This statement has been made by more than one refiner and they claim they are able to overcome the freight differential. It does not seem quite in line with some other statements that have been made. For example the so-called naphtha referred to above is being sold at 6¼ cents at the West Texas refinery but it has been fully treated and is guaranteed to pass both the doctor and the corrosion tests. A Detroit user claimed this material cost him delivered at his sidings 6.55 cents a gallon.

Higher Gravities

There was very little animation in the demand for the higher gravities. In fact the buyers are only ordering just what they must have and the demand is uneven and ragged. Some is moving but there is no snap to the demand. One of the largest independent distributors whose specialty is a 400 endpoint gasoline declined an offer of several hundred cars over the spring months at 7½ cents but admitted it was not their present policy to obligate themselves to take in any quantity for future delivery. They are buying for immediate and known wants only. The situation in the Ohio district continues very chaotic. One large concern which has had quite a business there and works the state regularly complained there was no real bottom to prices. Another which had some material which it wanted to move found that the very best quotations it could make were above the prices at which Ohio dealers could fill their wants and did not make a sale as they said they were not prepared to go to 6.30 or under Group 3 basis for business and they found they would have to do this to land any orders. The action of the Standard Oil Co. of Ohio in cutting the tank wagon and station price has made the situation more difficult for sellers. The price which was put into effect on Friday, January 25, was 19 cents service station, a decline of 1 cent, with a tank wagon price of 16 cents to both dealers and consumers in commercial quantities. Previously the tank wagon was 16 cents for resale and 17 cents to commercial accounts. In addition to these prices the company will continue to make a special discount to governmental agencies and to utility companies. The last tank car quotation reported from the Standard Oil Co. of Ohio was 11 cents outside of Cleveland and 10.75 in Cleveland. The demand for the Grade A or absorption natural gasoline has been good from distributors, mostly in single car orders. Some selling departments of large refiners have wondered at this demand and have asked the reason. The answer has been given at least for a good part of this demand in the preceding part of this letter.

Kerosene Steady

Kerosene has continued to move at about the same pace as previously. There was little or no change except that it is evident from inquiries received and remarks made that the larger distributors and some who buy for resale are seriously considering placing orders for their spring requirements. At present prices there would seem to be little chance of a price loss and possible opportunities for a real profit but while some kerosene has been offered at low prices, under 5 cents in fact, this is for immediate shipment and the larger refiners are understood to be more willing to build up their own stocks and would not consider any such low prices for deliveries later in the season. In fact, right now, the general tone is quite steady with only an occasional seller who is seeking spot business.

Distillate Demand

The demand for distillates, zero gas oils and the lighter grades of zero oils, in fact for all products which are available for domestic oil burners, is very strong with an upward movement of prices. There is great complaint of slow deliveries to which some refiners have replied that the blame is not theirs but the dealers or the railroads who are slow in returning empties. There was a quick and large demand and available cars were loaded and rushed from the refineries and they are now waiting for more to get back for a refilling. There were numerous inquiries in the market as well as many orders for February deliveries and the orders against contracts are large. There are some large distributors and tank car dealers who have previously placed orders will be completed shortly. They are looking for more material and find the market decidedly higher when it cones to buy at present. Others who are not well supplied with material bought at low prices are waiting for these purchasers to be out of the road when they claim prices will have to be advanced [illegible] simply because the old costs cannot be duplicated at present. The low buying price of 36-38 distillates was 3⅝ cents and of the 38-40, 3¾ cents Group 3 to resellers and with the continuance of the zero weather the price to distributors will surely reach 4 cents. Some refiners are already quoting that price for their own product direct to the trade. Buyers find little material is now to be had and few refiners ran more distillates than they expected to need and they are holding supplies for their own trade. This is so generally the case some buyers in Tulsa have reported to their principals no material was to be had. The [illegible] gas oils are also scarce and badly wanted by a great many distributors in all parts of the territory and the same is true of the zero 28-30 and 30-32 fuel oils or gas oils as some name these oils which are suitable for domestic oil burners. The 28-30 zero is particularly scarce and 7 cents is a low price right now and some owners of this product are selling to distributors at $1 a barrel.

The cold weather has been so steady there has been no accumulation of [illegible] on the sidings of the large local dealers. This in some seasons has been the cause of weakness in the local market as they have been closed out to the tank car makers of fuel oil at cost or even less several times to escape the payment of demurrage. One of the largest sources of supply, a local refinery, has also withdrawn until it fills orders already booked. Most business being filled by this concern right now is at prices below the present market. The management of this refinery stated that they had no idea right now when they would be in the market again but as the output of the three plants is very large it may come within a week or two or possibly not for a longer time and until they are ready to take new business it leaves a much wider field for the other refiners. On these products in such demand for furnace oil there are no quotations for periods obtainable. The market is in sellers' hands for the present and buyers must pay the price or go without which is quite a reverse from the position in the lighter products where the buyer is for the time being naming the price. One thing limiting the present supply of desirable furnace oils especially in the gas oil group is the limitation on runs by some of the leading refiners. The Barnsdall Refineries are operating but two of its three plants and these two at approximately half capacity. Necessarily its output of materials is reduced with the volume of crude run. It is out of the market for all burning oils from kerosene to heavy

(Continued on Page 250)

Trading on East Coast on Narrow Lines

Declines Reported on Gasoline and Paraffin Wax. Market Position Rather Easy on Remainder of List of Products

By A. E. Mockler
New York Bureau, The Oil and Gas Journal

NEW YORK, Jan. 28.—Trading in refined products in the East Coast area continued along narrow lines this week, and the market was again in easy position. Declines are reported on gasoline and paraffin wax, and the market position is rather easy on the remainder of the list. The chief element of strength is centered in the export markets for gasoline and kerosene, where prices have stiffened, in response to reported action by the new Export Petroleum Association.

Weather conditions have been extremely unfavorable for motoring this week, and there has been a material falling off in the volume of gasoline sales in both tank car and tank wagon markets. In addition to the curtailed business, the situation has been further unsettled by reported price cutting on tank car business by a number of the smaller interests here. The tank wagon position is rather easy, as reflected by the price reductions made early last week.

The eastern trade is watching field developments with more than the usual amount of interest, owing to the cuts in the Mid-Continent schedule and the continued climb in crude production. The current report of the American Petroleum Institute on refinery stocks was also a rather bearish element this week. This summary, covering increases and decreases in stocks at refineries covering approximately 89 per cent of the operating capacity east of California shows a net increase of 1,157,000 bbls. during December. Details follow:

	Barrels	
	Increase	Decrease
Domestic crude	.....	1,548,000
Foreign crude	960,000	.....
Gasoline	3,038,000	.....
Kerosene	.....	369,000
Gas and fuel oil	.....	2,005,000
Lubricating oil	396,000	.....
Miscellaneous	685,000	.....
Totals	5,079,000	3,922,000
Deduct	3,922,000	.....
Net increase	1,157,000	.....

Gasoline

The reduction in tank car schedules initiated in East Coast area by Standard Oil Co. of New Jersey has been followed by all of the other interests here, and the market is now held at 10¼ cents for U. S. Motor. California U. S. Motor is quoted at the same level here. Reports in several quarters of the market indicate that business is being done at 10⅛ cents, and possibly an eighth under this figure in some cases, but none of the larger interests are reported shading the 10¼-cent figure. It is possible that maintenance of the market at this level may attract larger shipments of outside gasoline into the territory, in which event East Coast interests may be forced to lower the market here further to meet competition. In several quarters, usually well informed, the belief is expressed that U. S. Motor cannot be held at 10¼ cents very long, and that an early reduction to 10 cents is probable.

Snow, rain and sleet throughout the Atlantic Coast territory made for a sharp curtailment in motoring, and a consequent let-down in the demand for gasoline. These factors, combined with the quarter-cent price drop, undermined distributors' confidence in the market position completely, and demand was exceedingly dull. Marketers were finding it hard to interest distributors in U. S. Motor in a large way, and jobbers in some instances were not running with more than one or two days' supply on hand, chancing being caught short of spot material rather than "long" on stored stocks in the event of another decline in the tank car market. The rumors of price shading on tank car sales are of course circulating among jobbers, as well as refiners, and this has also tended to cut down actual buying from the usual sources of supply.

The A.P.I. December report, showing a gain of 3,058,000 bbls. in holdings of gasoline at refineries east of the Rockies is pointed to as indicating the need for further curtailment of refinery runs in the East Coast area during the winter season of slack consumption.

California U. S. Motor is arriving at East Coast markets in fairly liberal volume. Receipts during the week ended January 19, the last week for which detailed data is available, were 418,000 bbls. at New York, Baltimore and Philadelphia. Most of this motor fuel is moving into consuming channels through the marketing departments of the large refiners, who are using the California gasoline as a base for premium fuels. Current quotations on California U. S. Motor, f.o.b. Pacific Coast terminals, range from 7½ to 8 cents per gallon.

Tank Wagon Gasoline

Standard Oil Co. of New York has brought the New York City market in line with that prevailing in the remainder of New York State with a reduction of 1 cent in Metropolitan New York, including Long Island and Westchester County. The quotation here and in the rest of the State is still 1 cent under that prevailing in the remainder of New York's territory.

Warner-Quinlan and Municipal have ended their price war, the former advancing its filling station price 5 cents to 19 cents. The latter is still 3 cents under this figure. Both companies are underselling the remainder of the market, as they have eliminated the sale of "white" gasoline and are selling a fuel classing as premium motor gasoline at prices 4 to 6 cents under the quotations of other marketers on similar types of gasoline.

Standard Oil Co. of New Jersey has restored to its distributors the 1 cent which it had taken off by a previous decline in service station prices, without a corresponding drop in the tank wagon figure. The current decline named by "Esso," applying only to the tank wagon basis, puts the market back to where it was before. The company's distributors in New Jersey are now buying their gasoline from the tank wagon at a gross price of 16 cents, including the 2-cent state tax, and retailing it at 20 cents, showing a 4-cent spread. In New York City, assuming that the large refiners are marketing at their published tank wagon prices, the margin to retail distributors is only 2 cents.

Tank wagon markets are still rather "jumpy" and further reductions in the East Coast area would not be a surprise. The current price cuts are labeled as "seasonal declines" by the marketers, but they are dictated primarily by competitive conditions. The latter are traceable directly to the seasonal decline in consumption.

Kerosene

The market has lost ground, and is none too steady. The 9-cent quotation of the leading interest is little better than nominal, and all interests in the local territory are accepting business on water white at 8½ cents. Demand is holding up fairly well, but there is plenty of kerosene on hand, and markets are rather soft. Large marketers are moving out considerable quantities of kerosene distillate against furnace oil contracts, weather conditions having been exceptionally favorable for a large volume.

Tank wagon kerosene is without change, the market holding at 15 cents. Here is a case where competing marketers are evidently inclined to "let well enough alone," the present quotation having remained undisturbed for more than a year. Business has shown improvement in this division of the market, and marketers are anticipating continued good demand during the next several weeks.

Lubs

Slack trading has prevailed in the lub market, volume being considerably under recent weeks. Cylinder stocks are neglected, and buyers' views are considerably under current quotations. Refiners have shown no inclination to make any drastic downward revisions in prices, but the trade expects an early decline, and is deferring buying in anticipation of a market break. A little inquiry for bright stocks has been seen, with light commanding 47 cents and the dark grade being quoted at 1 cent under this level. Prices on other grades of cylinder stocks have not been changed, although reported to be coming in for some shading.

Refiners note a rather slow call for red and pale paraffin oils, no price changes being reported.

Domestic distributors of lubs have been out of the market now practically for a fortnight, and the same holds true of the export division. The situation has thus developed into a waiting game, refiners making an effort to hold prices at current levels until buyers are forced to come in for replacements, and the buyers endeavoring to remain out of the market until prices have declined.

Fuel Oil

A good movement of Bunker "C" is reported in the local market, with refiners continuing to quote $1.05 per barrel, at local refinery terminals, or $1.10 per barrel, barged alongside within the harbor limits. Most of the current movement is centered on deliveries against contracts.

Industrial demand for fuel oil has shown some improvement, and consumption for furnace oil has also been on the upgrade. A number of large heating installations, equipped to burn the lower grades of fuel oil, have been drawing stocks on contract in larger volume than at any time during the season, and with continued cold and stormy weather indicated, refiners are optimistic regarding further heavy sales of this oil.

Gas Oil

The market for 32-36 gas oil is held unchanged at 5¼ cents by the leading interest, but the bulk of the business is reported going through at an even 5 cents. The large gas companies in the metropolitan territory are reported to have largely increased their contract withdrawals.

Lower grades of gas oil, suitable for furnace oils, are quoted all the way from 4⅝ cents up to 4⅞ cents. Refiners in this area have been heartened somewhat by the December A.P.I. statistics, showing a drop of 2,005,000 bbls. in holdings of gas and fuel oils at refineries east of the Rocky Mountains during December.

California gas oil is not much of a factor in the East Coast situation, no large arrivals having been reported during recent weeks.

Diesel Oil

Refiners continue to maintain the market of $2 per barrel, bulk, f.o.b. local refinery terminals, and a good demand is reported. Most of the current business is along contract lines, although refiners report a fair day-to-day business in the spot market.

Industrial consumption of Diesel oil is running along routine lines. Refiners are showing some interest in reports of the successful utilization of Diesel oil as fuel for automobile and truck engines, but it is felt developments thus far have not graduated from the experimental scale, and no commercial volume of this type of business is in sight for the near future. At present, the refiners are devoting most attention to developing sales in the marine business, where the prospect for increased volume is very bright.

Paraffin Wax

Further declines on fully refined grades have developed on curtailed buying and rather liberal offerings from some quarters. Spot offerings are reported at 5⅜ cents for 120-122 a.m.p., off an eighth cent; 5¾ cents for 125-127 a.m.p., unchanged from the previous week; 6⅜ cents for 130-132 a.m.p., a reduction of one-eighth cent; 7⅛ cents for 133-135 a.m.p., also one-eighth cent lower, and 7¾ cents for 135-137 a.m.p., unchanged. The break in fully refined grades follows a sharp downward movement in the price of crude scale. The market for 122-124 a.m.p. white crude scale is down a half cent, car lot business having been put through at 4 cents per pound.

Domestic consumers are reported rather well covered on their current needs by wax at higher price levels, and they are unwilling to operate further in the present market. It is considered probable in trade circles that after the spot market steadies somewhat, consumers will come in for additional supplies to average down the cost of their current holdings.

In the export division, operators are continuing to remain out of the market. Recent heavy buying for shipment abroad, it is stated, has taken care of the immediate wants of the export trade, and with the market falling there is little incentive for the foreign operators to come.

Refiners, as a rule, are not yet willing to concede that the market decline is of sufficient importance to warrant any change in their selling policies. Most of the eastern refiners have been an eighth to a quarter cent per pound over the spot market during the past fortnight, and are slow to follow the market downward. The refiners are evidently banking on the usual first-quarter demand from operators to strengthen the market position, but thus far there has been relatively little speculative interest shown. One unsettling feature in this regard is the general uncertainty as to how broad the operations of the new petroleum export association are to be, and particularly whether this group plans to take a hand in the paraffin market situation in the near future.

California Oil Receipts

Receipts of California crude and refined oils at Atlantic and Gulf Coast ports for the week ended January 19 totaled 418,000 bbls., a daily average of 59,714 bbls., compared with 387,000 bbls., a daily average of 55,286 bbls. for the week ended January 12 and a daily average of 57,107 bbls. for the four weeks ended January 19. Details follow:

(Barrels of 42 gallons)

At Atlantic Coast ports—	
Baltimore	114,000
New York	155,000
Philadelphia	149,000
Total	418,000
Daily average	59,714
Daily average four weeks	57,107

Distribution of total California oil receipts is as follows:

Gasoline	418,000

Imports

Imports of crude and refined oils at the principal United States ports for the week ended January 19 totaled 1,414,000 bbls., a daily average of 202,000 bbls., compared with 1,331,000 bbls., a daily average of 190,143 bbls. for the week ended January 12 and a daily average of

(Continued on Page 241)

Practical Suggestions in Refining

By W. T. Ziegenhain

Installs Rotary Thermocouple on Wedge Type Burner

The Barnsdall Refineries, Inc.'s plant at Barnsdall, Okla., had trouble getting an accurate temperature reading on the various hearths of their wedge burner under varying conditions until a rotary thermocouple was installed. Standard instruments were used in the new arrangement but the hook-up of the instruments and the location of the thermocouple together with the design of a slip ring had to be worked out by the Barnsdall engineers.

The improvement in the system was based on the fact the thermocouple recorded the temperature of the earth itself while the method previously employed recorded the temperature of the air above the earth. There was enough difference and a sufficient lag in the temperature readings to fully justify the new method and now four of the hearths are so equipped.

The value of the exact temperature reading at all times is most necessary when the burner is operated at capacity and an indirect benefit from the present method of recording the temperature has been the increased capacity of the burner. By carefully controlling the temperature more earth can be burned and the operators have been able to speed up the rotation of the burner so that 20 per cent more earth can be burned.

The increased number of revolutions per unit of time was effected by decreasing the size of the pulley wheel on the shaft driving the gear mechanism under the burner. The burner made one revolution in about 52 seconds originally and was speeded up to make a revolution in about 38 seconds. The smaller wheel was designed in this proportion.

The thermocouple itself is protected with an iron shield that bolts on to the back side of one of the rabble arms on each hearth. As the rabble arms rotate the end of the thermocouple drags in the earth to a depth of about one-half inch, the depth of earth remaining constant due to the rabble arm constantly smoothing off the surface ahead of the thermocouple.

Wire Connections

The wires leading from the thermocouple pass through the hollow arm and down through the pipe support in the center. Then they lead to the contact box and recording instruments. These revolve with the burner itself but a platform and step is provided so the operator can work with the instruments if necessary. The instruments are lighted, contact being made as the burner revolves by two carbon brushes bearing down against two copper rings.

An ordinary wide paint brush is fastened on the contact arms ahead of the brushes and as it rotates, it sweeps the copper ring free of dust.

In similar manner, the thermocouple leads could be brought together at the base of the burner and a sliding contact arrangement made there for the different thermocouple which in turn would allow the recording instruments to be set stationary. This was not thought necessary at the time the thermocouple was placed in the burner.

Prior to adopting the idea of locating the thermocouple on the rabble arm a lag of from three to four hours was witnessed in the temperatures and this was long enough to allow considerable quantities of the earth to be overheated or underheated as the case may be. In some plants this may not be a serious objection, but is an objection if the plant is run to capacity and only a narrow temperature range on burning is allowable to maintain that throughput.

BUILD ELEVEN-MILE INSULATED LINE FOR HIGH POUR TEST FUEL

One of the interesting engineering problems was recently solved by the Phillips Petroleum Co. when their fuel oil line from their refinery at Borger, Tex., to Sanford, Tex., was completed and put into successful operation. It is interesting because it is the only line of its kind now in existence in the Mid-Continent and probably in the industry.

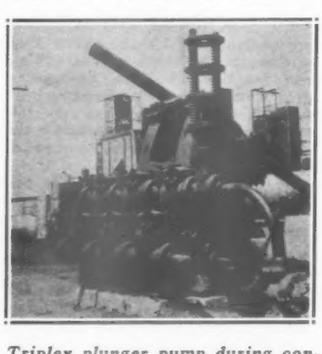
The problem was to transport a 28-32 gravity, 85 degree pour test 200 at 120 degrees Fahrenheit viscosity fuel oil 11 miles through a rough country and in a

Showing line treated with protective covering and application of insulation.

locality in which zero weather is to be expected.

The fuel oil is introduced into the line at 200 degrees Fahrenheit and is pumped by one or two, depending on the amount of oil required, triplex plunger pumps equipped with alleviators and powered with 60 horsepower motors. These pumps are capable of working at 900 pounds pressure; however, working pressure on the line ranges from 125 pounds to 450 pounds depending on whether one or both pumps are in operation.

The line itself is 11 miles long and was completed in 60 days. It is of 4-inch



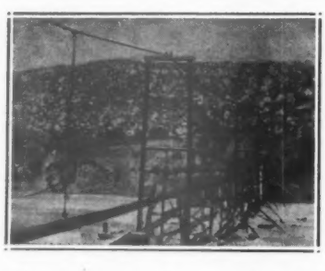
Triplex plunger pump during construction. Alleviator can be plainly seen.

welded pipe tested to 1,600 pounds pressure, painted, wrapped insulated with 1-inch wool felt with waterproof jacket and buried 36 inches. River and creek crossings are overhead suspension type where the insulation is covered with a metal jacket. Expansion is taken care of by the use of cross head guided cast steel expansion joints at proper intervals. A photograph shows one of these in the line.

The line is anchored between joints to properly distribute the expansion. Thermometer wells have been inserted at convenient intervals in order to determine the temperature of the liquid and check calculations of performance of the line under various conditions. Drains are also provided should necessity require their use.

Fuel oil reaches the Sanford end of the line at from 90 degrees to 110 degrees depending on atmospheric temperature and whether one or both pumps are in operation. It is here run into 55,000-bbl. coiled tanks, two of which are used alternately as receiving tanks. If the oil is not allowed to remain in the tanks over too great period of time, it is not necessary to apply steam to the coils for further handling of the oil, prior to, or for loading in cars to various destinations.

As continuous operation is essential, an 18x4½x18 steam pump has been provided as a standby. Steam is furnished by four 75 horsepower oil field boilers. To further preclude the possibility of a shut down and to insure a 12-hour supply of hot oil, should hot oil not be available from the still or should the gas line to the boilers become inoperative, a 2,000-bbl. tank of fuel oil is maintained at 200



Showing type of suspension and frames employed and rugged topography of the country through which line passes.

degrees Fahrenheit. Also a 2,000-bbl. tank of water is kept warm to run into the line should the supply of fuel oil be cut off. This water can quickly be raised to steam heat by the four boilers. So far, this has been unnecessary, however; the line was originally heated by water before oil was introduced into it. This prevented the first oil from plugging the line.

This fuel oil line has been in operation since July 29, 1928. Oil has been flowing through the line continuously since. At no time has it been necessary to shut down.

The problem of handling high pour test fuel oil is present in every plant running Panhandle crude oil and when the field was first brought in, three years ago, the oil was said to be too full of wax to be generally refined. At this time the crude price on Panhandle oil was posted relatively low and many refinery men purchased it and transported it to their refineries in tank cars. Difficulties were experienced immediately in transferring the fuel oil around in the plant during the winter months. To pump the fuel oil 11 miles through a country in which the temperature went below zero did seem to be quite a problem. Like most of the objections raised against new crudes, the new problem was solved and again brings out the fact that with the correct equipment and method of operation, what appears difficult becomes easy. The Phillips engineers chose standard equipment for the great share of their work providing ample capacity and a comfortable margin of safety in operation.

Above are shown pictures of the line

(Continued on Page 241)

Recent Patents

AGITATE WAX BEFORE SETTLING

1,694,090. Removal of Petrolatum from Oils. Charles Zweig, Wood River, Ill., assignor to Standard Oil Co., Whiting, Ind., a corporation of Indiana. Filed June 21, 1926. Serial No. 177,394. 5 Claims. (Cl. 196—19.)

In the method of removing petrolatum from oil which contains it, by diluting and settling at a low temperature at which the wax separates, the step of agitating the diluted oil at a low temperature before settling.

WAX TREATED WITH CHROMIC ACID

1,699,250. Bleaching Montan Wax. Wilhelm Pungs. Ludwigshafen-on-the-Rhine, Germany, assignor to I. G. Farbenindustrie Aktiengesellschaft, Frankfort-on-the-Main, Germany, a corporation of Germany. Filed March 8, 1928. Serial No. 260,260, and in Germany March 11, 1927. 4 Claims. (Cl. 196—21.)

1. A process for bleaching Montan wax, which consists in treating the said wax with chromic acid in the presence of solutions of organic acids.

MIXTURES TO SETTLE CRUDE

1,699,374. Process of and Mixture for Cleaning Crude Oil. William L. Palmer, Long Beach, Calif. Filed May 17, 1926. Serial No. 109,788. 4 Claims. (Cl. 196-4.)

1. The process of cleaning crude oil which consists in dissolving oxalic acid in a suitable solvent, mixing with the acid thus dissolved glacial-acetic acid, cresylic acid and oleic acid, adding the mixture thus produced to the crude oil, and then permitting the oil to stand until the water settles out.

USE SUPERHEATED STEAM

1,698,811. Process of Refining Oil. Chauncey B. Forward, Urbana, Ohio. Filed August 19, 1919. Serial No. 318,484. Renewed March 26, 1927. 15 Claims. (Cl. 196—63.)

1. A process of refining oil, consisting in conveying a stream of oil through heating coils exposed to superheated steam and atomizing the heated product together with a compressible fluid in a closed vessel, in forcing the volatilized and atomized product from the closed vessel through heating coils exposed to superheated steam of approximately 1,000 degrees Fahrenheit or above until highly heated, and finally liquefying the highly volatilized product and separating the liquids so derived.

14. In a process of refining oil the improvement comprising passing a rapid flow of vapors of oil boiling substantially below 900 degrees Fahrenheit and free from hydrocarbon constituents in the liquid state in a stream of restricted cross section in a series of successive passes through a heater and superheating the oil vapors during their passage therethrough to a temperature in excess of 900 degrees Fahrenheit by maintaining a rapid forced flow of a superheated gaseous substance under superatmospheric pressure through said heater in indirect heat exchanging relation with said oil vapors and maintaining a temperature differential of less than about 500 degrees Fahrenheit between the said superheated gaseous substance and the hot oil vapors.

ELEVEN-MILE LINE FOR HIGH TEST FUEL

(Continued from Page 240)

and auxiliaries giving an idea of the manner in which the insulation was put on, the type of frames used in suspending the line, the type of expansion joint

Crosshead guided expansion joint.

used and the heavy duty type of pump used to force the oil on its 11-mile transfer.

EAST COAST TRADING ON NARROW LINES

(Continued from Page 239)

246,857 bbls. for the four weeks ended January 19. Details follow:

(Barrels of 42 gallons)

At Atlantic Coast ports—	
Baltimore	143,000
New York	878,000
Philadelphia	200,000
Total	1,221,000
Daily average	174,429
At Gulf Coast ports—	
New Orleans and Baton Rouge	153,000
Tampa	40,000
Total	193,000
Daily average	27,571
At all United States ports—	
Total	1,414,000
Daily average	202 000
Daily average four weeks	246,857

Export Markets

General hesitancy characterizes operations in the refined products export market. Uncertainty regarding the operations of the Export Petroleum Association, Inc., and the probable extent to which it will be in the market in the near future has been a disturbing feature, and has affected buyers and sellers alike. Export gasoline and kerosene markets have strengthened, on reported price fixing on export sales by the export group, but the remainder of the market is not affected yet.

Several cargo inquiries were reported in the Gulf gasoline market, but none of this business was reported closed, buyers being unwilling to meet the price views established by the association. The market was quoted at 8½ cents for Navy, 9¾ cents for 60-62 390 endpoint, and 10 cents for 64-66 375 endpoint. Navy in cases at New York was unchanged at 20.90 cents with a fair demand reported. California was reported firm at 7½ to 7¾ cents for Navy for export.

Kerosene sales in export channels were reported as fair on cased goods, the market here holding at 17.65 cents for standard white and 18.90 cents for water white. The bulk market at the Gulf was quiet, with sellers firm at 6¾ cents for prime white and 7¾ cents for water white, these quotations being an eighth cent over the market during the preceding week.

Cylinder stocks were showing weakness and export lubricating oil operators were not in the market to any great extent. The trade was looking for further price declines, and was inclined to remain out until the price basis is closer to their own price views. Other lubs were likewise dull in export channels.

Export inquiry for other refined products was rather sluggish. Paraffin waxes were lower, but prices held about steady on other products.

Petroleum Exports

The following table shows principal exports of petroleum and refined petroleum products from New York during the past three weeks (all figures in gallons unless otherwise noted):

	Week ended—		
	Jan. 19	Jan. 12	Jan. 5
Gasoline	770,000	570,000	410,000
Naphtha	1,547,000	.....	.....
Kerosene	1,285,000	272,000	50,000
Fuel oil	25,000	.....	36,000
Lub. oil	2,645,500	1,246,500	353,000
Petroleum, refined	1,330,000	552,000	2,514,000
	Pounds		
Petrolatum	.....	42,900	.....
Paraffin wax.	3,789,000	663,800	542,000
Refined	.....	24,000	.....
Scale	311,000	1,104,500	43,000
Lub. grease	1,003,000	1,361,900	459,000

DISTILLATION LOSS HIGHLY SIGNIFICANT

(Continued from Page 234)

very satisfactory indicator of the wildness of natural gasoline.

1. Scrupulous care in obtaining and preserving samples.
2. Through chilling of samples and distillation equipment before pouring.
3. Careful attention to the distillation equipment and procedure.
4. Continuous agitation of the ice water bath around the condenser tube.

Distillation Loss

Most of the distillation loss of natural gasoline occurs between the start of the distillation and the time it takes the thermometer in the distillation flask to reach 100 degrees Fahrenheit.

Distillation loss has a closer relation to vapor tension than any other property of natural gasoline and can be checked more readily and accurately than the vapor tension by the present method. In addition to the above it also is an indication as to the loss to be encountered by the refiner and jobber in handling. It is an indication to the manufacturer as to the quality of his production for so long as he keeps the recovery of his product as near as possible to the specifications for his products the more nearly he comes to getting maximum production from the plant.

Gasoline produced in plants using recompressors on the lighter ends will show higher distillation losses, than a product produced by straight absorption or charcoal process. The same factors which affect vapor tension and gravity affect distillation loss. Some of them are oil rate, gas pressure, still temperatures, after cooler pressure, general plant efficiency, the source and kind of gas and general plant operation.

With proper design and operation of a plant, gasoline of any desired distillation loss can be manufactured. Poorly designed, inefficient plants usually produce a gasoline of high vapor tension, high gravity and high distillation loss.

In the production of gasoline an increase of 1 per cent in the distillation loss would indicate a 1.5 per cent loss in production. This figure is lowered in a plant using an efficient fractionating process.

Plant design has quite a bit to do with distillation loss and production. Adequate cooling of gases, vapors and absorbent oil is very essential. Through stripping of the oil, the oil rate and the flexibility of the plant are all factors which will affect the distillation loss of the finished product.

CANADA'S OIL IMPORTS

CHATHAM, Ontario, Jan. 26.—Official figures compiled by the Dominion Bureau of Statistics for the year ending November 30 shows a further increase in Canadian imports of crude petroleum and refined products. Imports for 1928 of crude petroleum amounted to 905,123,534 gallons compared with 806,310,451 gallons in 1927. Imports of refined products were 156,801,621 gallons, compared with 128,208,504 gallons in the preceding year.

NEW WATER SERVICE FOR LOUISIANA CORP.

SHREVEPORT, La., Jan. 28.—Savings reaching up into four figures every month have been made possible for the Louisiana Oil Refining Corp. at its Bossier City refineries across Red River from Shreveport by the completion of a new water service from Cross Lake, the city's source of water supply. Construction of a 16-inch main from the Shreveport distributing system across the river serving Bossier City was continued to the company's plant and completed this month, the company sharing in the expense of construction.

Previous to this improvement the plants had been dependent upon wells on the refinery grounds and Red River for their water supply, this supply having to be processed before it was fit for use as boiler water, in the condensers and elsewhere about the plant. Elimination of treating plants and chemicals, company officials estimate, will effect a saving of approximately $800 per month. In addition to this, there is the great saving through reduction of "down time" for cleaning condensing equipment, removing scale from boilers, etc. This reduction has been estimated as high as 50 per cent. Furthermore, use of soft water from Cross Lake has made possible a greater throughput and resulted in a greater efficiency of plant operation all down the line, according to R. B. Pierce, manager of the refining department. The plants require between 750,000 and 1,000,000 gallons of water per day delivered at present by a battery of pumps which is to be replaced by a unit delivering 7,000 gallons per minute.

CLASSIFIED WANTS

(Continued from Page 237)

OIL INDUSTRY PRINTING

CONSUMERS LEDGERS
We are prepared to furnish from stock standard forms of gas meter Consumers Ledgers. Sample forms and quotations on request. First-class material and workmanship.
DERRICK PUBLISHING CO.
Oil City, Pa.

OIL FIELD LEGAL BLANKS
Leases, assignments, releases, township books, well records, etc. Request on your letter head gets free catalog. Olds Press, 215 East Third St., Tulsa, Okla.

INCORPORATIONS

DELAWARE incorporator. Charters, fees small, forms. Charles G. Guyer, 901 Market St., Wilmington, Del.

CHARTERS—Delaware best, quickest, cheapest, most liberal. Free forms. Colonial Charter Co., Wilmington, Del.

THE LUGAR CORPORATION
Financial and Industrial Engineers
Audits—Appraisals—Reorganizations
Mergers
527 Fifth Avenue
New York City.

MANUFACTURING MACHINISTS

MACHINE WORK—CASTINGS
Machined to your drawings. Gears, Machinery designed and built.
Modern Facilities—Prompt Service.
Reasonable prices. Send for our booklet.
GENERAL ENGINEERING AND MFG. CO., ST. LOUIS, Mo.

PATENT ATTORNEYS

REGISTERED PATENT ATTORNEYS
United States and Canada
Before disclosing your invention to anyone, send for blank form.
Evidence of Conception
Bulletin "How to Establish Your Rights and complete information free.
LANCASTER & ALLWINE
240 Ouray Bldg., Washington, D. C.

PATENTS—Oil well cases a specialty. Reliable services by an experienced practitioner, devoting personal attention to each case. References to oil well clients in Tulsa. B. P. Fishburne, Patent Lawyer, 550 McGill Bldg., Washington, D. C.

MONEY RAISING

CAPITAL SEEKERS
Will endeavor placing proposition of merit on underwriting basis. Box 44, Room 407, 26 Court Street, Brooklyn, N. Y.

COMPANIES organized and financed. Address full details to, Box C-697, The Oil and Gas Journal, Tulsa, Okla.

FINANCE YOUR OWN project with shares bonded. Quickest, most satisfactory known method of raising capital. Information free. Bankers Interstate Security, Electric Bldg., Denver, Colo.

DO YOU NEED MONEY for organizing or financing oil or mining deals? Write 136 E. 13th, Oklahoma City, Okla

BULLETIN, containing information of priceless value to responsible parties seeking capital, yours upon request. Free analysis and advice cheerfully given. Moderate rates. Prompt service. Morris, Financing Specialist, 3608 Warren St., Philadelphia, Penna.

WANTED

WANTED—Oil operator to develop proven field on shares. Dome formation, oil shallow, near railroad, Alberta, Canada. Box C-762, The Oil and Gas Journal, Tulsa, Okla.

WANTED parties to finance development of an automatic hammer that drives one pound small nails or tacks at one continuous operation. Box 104, Pleasanton, Texas.

WANTED
To get in touch with reputable manufacturer or distributor of oil industry equipment or petroleum products who is desirous of having a high-class man with several years' experience in the oil industry represent them in Oklahoma at reasonable cost. Full details, reference, etc., will be furnished upon request. Box C-769, The Oil and Gas Journal, Tulsa, Okla.

RESPONSIBLE DRILLING CONTRACTOR wishes straight contracts in Michigan Field. Am completely equipped with the best of tools and will make an interesting price to reliable companies. Have the experience, ability and finances to complete your wells in record time. Address Box C-772, The Oil and Gas Journal, Tulsa, Okla.

FOR SALE—MAPS

NEW MAP OF MID-CONTINENT OIL FIELDS, suitable for pocket or desk top, shows counties and producing areas in Oklahoma, Kansas, Texas, Arkansas, Louisiana and Eastern New Mexico. Postpaid for $1. Kelley Map Co., P. O. Box 1773, Tulsa, Okla.

FOR RENT

FOR RENT—Office room, Stenographic services furnished. Call 3-3191. 607-08 Mayo Bldg., Tulsa, Okla.

REAL ESTATE

FOR SALE—Good ten-room residence in Charlottesville, $16,500.00 and 1,500 acres of grazing land in valley of Virginia $50.00 per acre. Trade for western lands. Spears Havely, 503 N. 10th St., Richmond, Va.

GEOLOGISTS

OIL LOCATED before drilling. Geophysical method. Magvibrometer Instrument; take pay in oil. No oil, no pay. Except traveling and testing expenses. 95 per cent accuracy. O. P. Coffin, Caddo, Texas.

LOCATING AND DEFINING OIL AND GAS structure which will produce. WANTED, capital interested in wildcat territory. Will lease and locate. D. H. Reavis, Columbia, Tenn.

GEOPHYSICAL SURVEYS made with Vertical Intensity Magnetometer. Also combined geological and geophysical reports, if desired. MID-CONTINENT EXPLORATION COMPANY, INC., 727 Giddens-Lane Bldg., Shreveport, La.

ADDRESSES WANTED

THOMAS F. JACKSON. Please communicate with me. J. S. Herkness, SE cor. 10th and Lombard Sts., Philadelphia, Penna.

Brief Items for Petroleum Refiners

To Start Operating Burford Refinery at Pecos February 1

The Burford Oil Co. this week will start operating its million dollar refinery which has been under construction at Pecos, Tex., for the past seven months. The plant will operate on a basis of 6,000 bbls. daily. The crude will be transported from the Winkler County Field in a pipe line owned jointly by the Burford Oil Co. and the Skelly Oil Co. The latter company has crude oil production in the Winkler County Field. The pipe line has been in operation since last July.

The Burford refinery was designed to handle the Winkler County crude oil. The skimming operation is taken care of by one large pipe still. Two cracking units of the Jenkins type are under construction with a total capacity of 4,000 bbls. daily. These units will operate with fuel oil and gas oil as charging stock.

The refinery incorporates several features of interest to plant operators. Practically all the pumping will be done by electrically driven pumps. A special continuous process to treat gasoline from the Winkler County crude has been installed enabling the refinery to produce motor fuel meeting all specifications required of U. S. Motor gasoline. The refinery, when all units are completed and in operation, will have an output of 125,000 gallons daily.

The company will market the gasoline under the trade name of Crystal gasoline in West Texas and New Mexico. The general sales offices of the Burford Oil Co. are located in Pecos, Tex., in charge of B. D. Dawson as sales manager. John J. Thomas is general superintendent of the refinery. F. W. Burford is president of the Burford company and will be in general charge of operations.

ETHYL DISTRIBUTION IN INDIANA TERRITORY

CHICAGO, Jan. 26.—After April 1 Ethyl gasoline will be distributed by several companies in the Standard of Indiana territory. The exclusive contract which has been held by the Standard Oil Co. of Indiana expires the latter part of this month and after April 1 Ethyl gasoline will be on sale at the stations of several organizations.

The Johnson Oil & Refining Co. will distribute through its stations in Illinois, Wisconsin and Indiana and the company also has the franchise for Michigan. It already is distributor of Ethyl gasoline through its Ohio stations.

In Iowa the Tidal Refining Co. is making contracts with dealers to supply them with Ethyl gasoline. Over the entire territory the same regulations will prevail regarding the sale of this material as elsewhere. The Standard Oil Co. of Indiana will continue to distribute Ethyl gasoline through its stations.

CHANGE IN OWNERSHIP

C. A. Middleton and associates of Corsicana, Tex., have purchased the interest of G. C. Kent in the Kent-Middleton Refining Co. The company in the past has been owned by Messrs. Kent and Middleton, as partners, the latter having general charge of refinery operations. The company operates refineries at Corsicana and Minerva in Milam County and the two plants having a combined crude oil capacity of 6,500 bbls. daily.

The company was organized during the Powell Field development. Mr. Kent was a large independent producer in that field.

ELECT BOGGS PRESIDENT OF KANOTEX REFINING CO.

Clyde M. Boggs, former vice president of the Kanotex Refining Co. of Arkansas City, Kans., was elected president of the company at a meeting of the board of directors last week. Mr. Boggs, who has been connected with the company for several years, succeeds John McEwen Ames who died early in January.

W. L. Lesh who has charge of refinery sales was elected vice president of the company. R. R. Cox was re-elected treasurer. Miss Celia Estep, assistant treasurer, was elected a member of the board of directors. Mrs. E. K. Childers, secretary, was re-elected to the board.

The company expects to enlarge and improve its refinery at Arkansas City during the coming year. The refinery at present has a crude oil capacity of 12,000 bbls. daily with a cracking capacity of 6,000 bbls. daily.

DETERMINE DETONATION VALUE OF NAVY GASOLINE

The Navy Department through the Bureau of Supplies and Accounts about February 1 will announce the quantities of domestic aviation gasoline required at various points on the Atlantic Coast for the next contract period which will start May 1, 1929. It is expected that the contracts will be awarded about March 1.

The gasoline purchased must meet the specifications established by the Navy Department. The tests this year will include determinations of the detonation characteristics of the gasoline and other pertinent tests necessary to insure the procurement of a satisfactory motor fuel for naval aeronautical use. Complete information regarding specification for the Navy Department can be obtained by application to the Bureau of Supplies and Accounts, Navy Department, Washington, D. C.

N.P.A. SEMIANNUAL MEET APRIL 25-26

The semiannual meeting of the National Petroleum Association will be held at the Riverside Hotel, Cambridge Springs, Pa., on April 25 and 26. O. P. Kenney, Kenney Oil Co., New York; H. H. Greene, Kendall Refining Co., Bradford, Pa., and P. S. Tarbox, Independent Refining Co., Oil City, Pa., are in charge of the program.

The program will be of a practical nature with features which will be of interest to all departments. The usual fellowship supper will be held on the night of April 25.

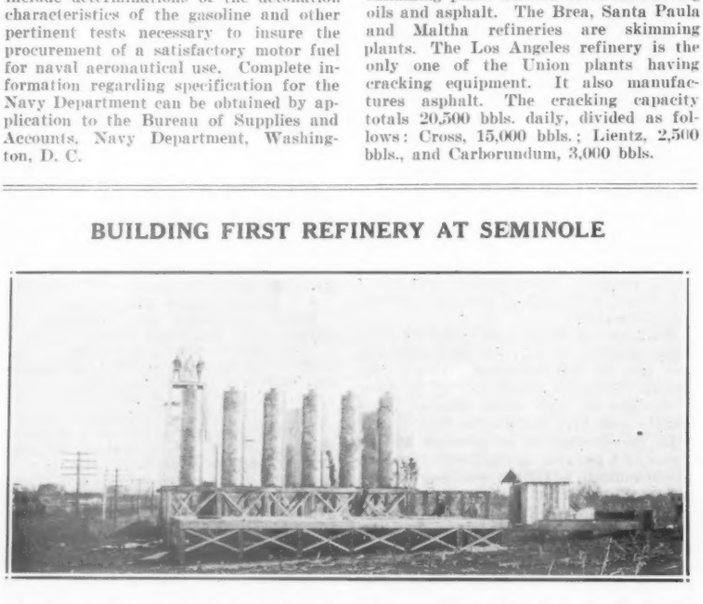
UNION BUILDS LARGE FUEL TOPPING PLANT

The Union Oil Co. is building a 15,000-bbl. fuel oil topping and viscosity reduction plant at its Los Angels refinery. The plant will be placed in operation in the near future.

The Union company now has six refineries in operation with a combined capacity of 104,000 bbls. These refineries all of which are located in California have the following capacities: Oleum, 27,500; Brea, 6,000; Los Angeles, 55,000; Santa Paula, 900; Maltha (Bakersfield), 5,000, and Avila, 10,000.

The Oleum refinery in addition to the skimming plant manufactures lubricating oils and asphalt. The Brea, Santa Paula and Maltha refineries are skimming plants. The Los Angeles refinery is the only one of the Union plants having cracking equipment. It also manufactures asphalt. The cracking capacity totals 20,500 bbls. daily, divided as follows: Cross, 15,000 bbls.; Lientz, 2,500 bbls., and Carborundum, 3,000 bbls.

BUILDING FIRST REFINERY AT SEMINOLE



The first refinery to be built as the result of the crude oil development in the Greater Seminole area of Oklahoma is now under construction 1½ miles east of the town of Seminole. The refinery which will have a capacity of 1,000 bbls. daily will be completed within 60 days.

The plant is owned and will be operated by the Seminole Refining Co., a recently organized company, the stock of which is largely held by residents of Seminole. Marlin W. Williams is general manager of the company and now has charge of construction. The plant will operate with crude oil from nearby leases.

The development of the Greater Seminole area has been unique in so far as new refinery construction is concerned. Previously whenever any large producing field was developed several refineries were usually built within a short distance of the producing area. The Seminole area has produced approximately 260,000,000 bbls. of crude oil and up until the building of the Seminole plant, no new refineries had been built in Oklahoma as the result of the large crude oil production available. The fact that the refineries already operating in Oklahoma and the major pipe lines connecting to refineries outside the State furnished an outlet for the crude oil is held responsible for the dearth of new refinery construction within the field.

HARRINGTON RESIGNS AS I.O.M.A. EXECUTIV

The resignation of Lou Harrington, executive manager of the Independent Men of America, has been accepted, according to an announcement by the board of directors. Mr. Harrington, who headed the association's work since March, will engage in work outside industry.

C. Y. Hinchey, who has been in charge of the advertising department of the a

Lou Harrington

sociation for the past two years, was appointed acting executive manager. A permanent appointment probably will be made in March. Trustees of the association have decided to hold the annual meeting for the election of directors and offices and the transaction of all usual business at Chicago on March 25 and 26.

The meeting was originally planned for St. Louis, but it was thought larger attendance could be had if the meeting were held in Chicago. There will be no exhibits except those of the organization.

OKLAHOMA JOBBERS FAVOR THE A.P.I. CODE

OKLAHOMA CITY, Okla., Jan. 24—Oklahoma jobbers in their annual meeting here today went on record as favoring the code of ethics to govern practices in the marketing of petroleum products as sponsored by the American Petroleum Institute. The association instructed A. J. McClelland, secretary of the association, to attend the Federal Trade Commission hearing for the code to be held at St. Louis February 11. As a delegate from the association Mr. McClelland will have four proxies which will be voted in favor of the code.

Independent jobbers should pay more attention to their lubricating oil and grease sales Frank W. Lovejoy of the Vacuum Oil Co. told the jobbers. Endeavoring to make a profit from gasoline was futile, Mr. Lovejoy said.

The association favored the proposed $100,000,000 bond issue for the building of improved roads in the State. The association, however, is opposed to an increase in the present 3-cent gasoline tax in providing revenue for the bond issue. The membership also favor a 5 per cent allowance in tax collections to cover shrinkage.

Technical Questions Answered

BY CHARLES K. FRANCIS, PH.D., TECHNICAL EDITOR

This department of The Oil and Gas Journal is devoted to the manufacturing branches of the oil industry.

Those connected with the refining of crude petroleum, the manufacture of natural gasoline and closely allied industries are invited to submit their problems to Dr. C. K. Francis, technical editor. The department was created for the purpose of aiding managers, superintendents, engineers, chemists and all those engaged in the various phases of plant operation; also those connected with the marketing and utilization of petroleum products.

Questions should be submitted in as much detail as possible so as to assure a satisfactory answer.

All inquiries should be signed and if other than the given initials are to be used please indicate the desired letters.

Questions involving patented processes, intricate formulas and calculations and estimates of costs, for obvious reasons, cannot be answered. The replies will appear on this page within a reasonable time.

NUCLEAR THEORY OF DETONATION

What is the nuclear theory that is used in connection with the explanation of the knocking of a fuel in the motor?—A. D. Y.

The nuclear theory of detonation was developed by Callendar—see Engineering, Vol. 121. According to this and the Aeronautical Research Committee Report No. 1,013, a nuclear theory of detonation was developed founded on the thermodynamical and physical properties of paraffin fuels under the conditions prevailing in the cylinder of a high compression engine. It was shown that residual drops, consisting chiefly of the higher paraffins would tend to persist in the charge remaining unburnt at any moment after ignition. These nuclear drops, on account of their low ignition temperature, would act as foci of simultaneous inflammation, giving rise to detonation, thought they form a very small percentage of the whole mixture.

Numerous experiments have shown that the various oxidation products of the paraffins the aldehydes were by far the most important, reaching 70 per cent in the case of hexane. In the case of nondetonating fuels, such as benzol and alcohol, the aldehyde yield was very small and occurred only at much higher temperatures. The fact that the aldehydes were accompanied by carbon dioxide and water led to the conclusion that the aldehydes were decomposition products of some primary substance formed by the direct union of oxygen with the molecule of the fuel. This conclusion was strikingly confirmed by the discovery that the addition of a dope, such as lead ethide or iron carbonyl, to a paraffin mixture almost entirely prevented the normal formation of aldehyde, reducing the yield in the case of hexane from 72 per cent to 10 per cent at 500 degrees Centigrade, and to a mere trace at lower temperatures. It appeared from the experiments that the dopes did not act to destroy the aldehydes, but by preventing their formation.

In other words, the dopes affect the primary compound from which aldehydes are produced. The primary compound formed by the direct union of oxygen with the fuel molecule would probably be of a very unstable character, difficult to detect under the conditions of the experiments at atmospheric pressure, although it might be able to persist in solution in the nuclear drops at higher pressures.

The conclusion is that detonation in paraffin fuels is due to the accumulation of peroxides in the nuclear drops during rapid compression. The quantity of peroxide formed would not in itself be sufficient to cause the detonation observed, but acts as a primer, causing simultaneous ignition of the drops. The metallic dopes act by reducing the peroxides as fast as they are formed, and preventing their accumulation, thus delaying the ignition of the drops.

EMULSIFIED ROAD OIL

What is emulsified road oil and how is it made?—A. J. E.

Some of the heavy crude oils are obtained from the wells mixed with water and when the water is present in comparatively small quantities, a more or less permanent emulsion frequently results. Oil of this character is not suitable for refining and is used in some localities as a road dressing. The emulsion is the result of salts in the water combining with substances in the oil to form insoluble material, the physical properties of which are such that it does not settle.

Water has no place in a refined road oil and when it is present, it may be explained as being due to accidental causes. The presence of water causes the oil to froth and boil over when it is heated.

SULPHUR IN MOTOR FUELS AND DIESEL OILS

The permissible quantity of total sulphur in gasoline for motor fuel purposes is fixed at 0.1 per cent and yet 2 per cent is considered safe for Diesel engine fuel. Have you any explanation for this?—M. S. D.

We are not familiar with any research which has demonstrated just what quantities of total sulphur will cause serious damage of a corrosive nature to the parts of a motor. The specification of 0.1 per cent has been chosen because it is believed to be a safe limit for all parts of the country and to meet the varied climatic conditions under which gasoline is consumed in automobiles. Many authorities are of the opinion, based on recognized principles of chemistry, that it is not the quantity of sulphur which is important, but the form in which it may occur in the different parts of the motor. When it is possible to operate a motor so that no water will be condensed, there will be no combination of sulphur and water to form corrosive acids.

If the gasoline contains appreciable quantities of sulphur and the automobile is driven a short distance, the entire engine does not become hot enough to drive off all of the water of combustion, consequently there will be some consideration and combination with the oxides of sulphur to form the sulphur acids. This condition may arise particularly in winter when the temperature is low. Sometimes a bad result follows when a car is driven through water so that some of the water becomes mixed with the lubricating oil and is introduced into the combustion zone, then the motor permitted to cool and remain standing for several hours.

The statement has been made that the average motor when driven over the road will be more seriously damaged by dust and road grit than by any form of sulphur that may be present in the gasoline. It is probably true that under ordinary conditions the normal wear of the motor parts from mechanical causes will be much greater than that of any chemical action which may result from the sulphur in the gasoline.

Usually a Diesel engine will be operated under conditions quite unlike those that surround the operation of an automobile motor. There is not so much dust and certainly nothing like particles of road material can reach the intake. With a maximum sulphur content of 2 per cent, it appears that there is no danger of serious damage to the parts exposed to the fuel and the products of combustion. Here too it is advisable to guard against the introduction of water and the lowering of the temperature. In the early forms of the Diesel engine water was introduced into the exhaust valve pots, and corrosion from sulphur followed. If the cooling of the jacket is carried to low enough temperature to condense the water formed by the combustion, there may be combination with the sulphur and the formation of sulphuric acid in the exhaust. An excess of cooling water will often be held to bring about this undesirable condition. Some Diesels have had a splash system for lubrication in which an emulsion of oil and water was used. Sulphur dioxide gas, one of the products of combustion, came in contact with this and the formation of sulphuric acid resulted. The corrosion of the iron followed.

The conclusion, suggested in the above, is that the percentage of sulphur in gasoline and the oils for Diesel service, as mentioned in the standard specifications, has been adopted as the result of experience and observation under the respective conditions surrounding the use of these different fuels.

GRAVITY IN DEGREES BAUME, SPECIFIC AND A.P.I.

Where may I find the values of degrees Baume in terms of A.P.I. and specific gravity? Please give me the weight per gallon of both 28-32 Diesel oil and 38-40 distillate, as they run?—H. E. S.

Circular 154 of the Bureau of Standards, National Standard Petroleum Oil Tables, which may be obtained for 30 cents from the Superintendent of Documents, Washington, D. C., contains tables showing the relation between degrees A.P.I. and specific gravity; also the weights per gallon.

Baume degrees have no standing in the United States with the recognized authorities for indicating the density of petroleum oils and petroleum products. All gravities should be stated in terms of degrees A.P.I. The relation of degrees A.P.I. to specific gravity is expressed by the formula

$$\text{Degrees A.P.I.} = \frac{141.5}{\text{sp. gr. } 60°/60° \text{ F.}} - 131.5$$

A petroleum product having a gravity of 28 A.P.I. weighs 7.387 pounds to the gallon, and the specific gravity is 0.8871. The weight of 38 A.P.I. oil is 6.951 pounds per gallon, and 0.8348 the specific gravity.

FILTER PRESS FOR WASTE OIL

Do you think a mechanical filter press could be of any value in reclaiming waste oil and used crankcase oil?—W. A. F.

There are many opportunities to recover waste lubricating oil and to put it into good condition by passing it through a filter. This is especially true when the oil has not been altered in structure and has not been contaminated by a lighter product, but the main foreign substance is solid material, such as pieces of metal and dirt. However, this form of purification cannot be applied with any great degree of success to used crankcase oil, which may contain water, acids, and lighter, or volatile, products.

OXIDATION OF LUBRICATING OIL DURING REFINING OPERATIONS

When agitating lubricating oil by air either when acid treating it or when using the earth contact method of treating, does the air cause an oxidation of the oil to a determinable degree and if so does this oxidation effect either or both the color and quality of the oil?—W.T.P.

It is commonly recognized in practical refining that air must not be admitted too freely when treating lubricating oil. This is especially so when a lubricating oil is treated by the contact method. When too much air is present there is a tendency to loss of color, formation of acids, and large quantities of gum.

This subject is discussed in some detail by Doctor Gruse in his book, Petroleum and Its Products, page 56, and the material below is abstracted from this source.

Petroleum oils are commonly regarded as resistant to oxidation; they are, however, easily attacked by oxygen, or even by air. Distillation of kerosene in a stream of air will produce recognizable amounts of acid, and exposure to air and sunlight for six hours have been known to cause recognizable changes in lubricating oils. Prolonged contact with air causes resinification and asphaltization of heavy oils; the action is accelerated by heating. In the case of these deep-seated reactions, it is probable that small amounts of unstable substances act as carriers of oxygen to the more stable hydrocarbons. It is common experience that a refined oil—one from which unstable compounds have been removed—is more resistant to extended oxidation than is a crude product.

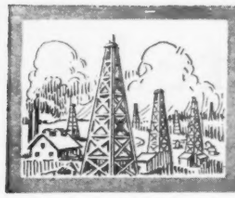
The nature of the reactions involved in the attack on the classes of hydrocarbons present in petroleum is not known, but the following reactions probably represent the most important ones:

1. Oxidation of side chains to carboxyl groups.
2. Polymerizing oxidation.
3. Unsaturating oxidation.
4. Rupture of a chain or cycle, usually at a double bond.
5. Closing of a cycle.

The action of oxygen is extensively treated in Petroleum Technology by Gurwitch-Moore, pages 37 to 60, in which the following observations are made.

All petroleum products are acted upon, even at ordinary temperatures, by the oxygen of the air; they become yellow and turbid, deposit flocky precipitates, and acquire a more or less pronounced acid reaction. It is a general rule that unrefined distillates oxidize much more rapidly than refined products. Overheated and partially decomposed distillates which are rich in unsaturated compounds are more easily oxidized than the normal undecomposed ones. The higher fractions which are richer in branch chain and high molecular hydrocarbons, are generally more readily oxidized than the lower fractions.

The oxidation of petroleum oils at ordinary temperature, or when slightly warmed, is, it seems, promoted by feeble local electric currents, such as are produced when two metals come in contact under water. Conradson on blowing air by a glass tube through a mixture of turbine oil with water, in which an iron wire was placed, found no noticeable change in the color or acid value of the oil. When, however, the glass tube was replaced by a brass one, other conditions the same, the oil became much darker and developed acid.



REFINERY AND CRUDE PRICES

Quotations on refined products are for interstate or export movement unless otherwise noted.

GASOLINE AND NAPHTHA

	Jan. 29		Jan. 22		Jan. 15	
OKLAHOMA (Group 3)—						
50-52 450 endpoint	.06¾		.07¼	.07½	.07½	
56-58 450 endpoint	.06¾		.07½		.07½	
58-60 450 endpoint	.06¾		.07½		.07½	.07¾
*58-60 437 endpoint (U. S. Motor)	.0775		.0796		.08	
*60-62 437 endpoint	.0773		.0847		.0797	
*60-62 400 endpoint	.0825		.0843		.0883	
*64-66 375 endpoint	.0850		.0937		.0925	
68-70 360 endpoint	.08½		.09	.09¼	.09	.09¼
64-66 437 endpoint (blend)	.07	.07¼	.07½	.07¾	.07½	.07¾

*Weighted average prices January 28, 21 and 14, as reported by representative refiners. Sales to jobbers only.

NORTH TEXAS—						
56-58 450 endpoint	.06¾		.07	.07¼	.07¼	
58-60 450 endpoint	.06¾		.07¼		.07¼	
58-60 437 endpoint (U. S. Motor)	.07¼	.07½	.07⅜	.07½	.07⅜	.07½
60-62 400 endpoint	.07½	.07¾	.07¾	.08	.07¾	.08
64-66 390 endpoint	.07⅝		.08		.08	
64-66 375 endpoint	.07¾	.08	.08¼	.08½	.08¼	.08½
68-70 360 endpoint	.08½	.08¾	.08¾	.09	.09	
64-66 437 endpoint (blend)	.07	.07¼	.07¼	.07½	.07¼	.07½
NORTH LOUISIANA—						
58-60 437 endpoint (U. S. Motor)	.07½	.07¾	.07¾	.08	.08	.08¼
ARKANSAS—						
58-60 437 endpoint (U. S. Motor)	.07½		.08		.08	.08¼
PENNSYLVANIA—						
52-54 Naphtha	.08½	.08¾	.09	.09¼	.09¼	.09½
54-56 Naphtha	.09½	.09¾	.09¾	.10	.09¾	.10
58-60 Gasoline	.09¾	.10	.10	.10¼	.10	.10¼
60 Gasoline	.10¼	.10½	.10¼	.10½	.10½	.10¾
62 Gasoline	.10½	.10¾	.10¾	.11	.10¾	.11
64 Gasoline	.10¾	.11	.11	.11¼	.11	.11¼
CALIFORNIA—						
58-60 437 endpoint (U. S. Motor) domestic	.09½	.10	.10	.11	.10	.11
CHICAGO DISTRICT (Based on Group 3)—						
50-52 450 endpoint (Naphtha)	.06⅞		.07¼	.07½	.07½	.07¾
56-58 450 endpoint	.06⅞		.07⅜	.07⅝	.07½	.07¾
58-60 437 endpoint (U. S. Motor)	.06⅞	.07	.07½	.08	.07½	.08
60-62 400 endpoint	.07½		.08⅛	.08⅜	.08¼	.08⅜
64-66 375 endpoint	.08		.08¾	.09	.08¾	.09
68-70 360 endpoint	.08¼	.08½	.09¼	.09½	.09⅜	.09⅝
64-66 437 endpoint (blend)	.07¼	.07½	.07½	.08	.07½	.08
GULF COAST (Export)—						
58-60 (U. S. Motor)	.08½		.08½			
60-62 400 endpoint	.09½		.09½			
61-63 390 endpoint	.09¾		.09¾			
64-66 375 endpoint	.10		.10			

NATURAL GASOLINE

	Jan. 29		Jan. 22		Jan. 15	
OKLAHOMA (Group 3)—						
Grade A, 72-79.9, 375 e.p., rec. 90%	.07¾		.07¼		.06¾	
Grade AA, 80-87.9, 375 e.p., rec. 90%	.06¾	.07	.06¼	.06½	.05½	.05¾
Grade B, 76-83.9, 375 e.p., rec. 85%	.05¾		.05¾		.05¼	.05⅝
Grade BB, 84-92, 375 e.p., rec. 85%	.05½		.05½		.05¼	
Grade C, 80-90, 375 e.p., rec. 78%	.05¼	.05½	.05½		.04⅞	.05
NORTH TEXAS—						
Grade A, 72-79.9, 375 e.p., rec. 90%	.07½	.07¾	.07¼		.06¾	
Grade AA, 80-87.9, 375 e.p., rec. 90%	.06¾	.07	.06¼	.06½	.05½	.05¾
Grade B, 76-83.9, 375 e.p., rec. 85%	.05¾		.05¾		.05¼	
Grade BB, 84-92, 375 e.p., rec. 85%	.05½		.05½	.05¾	.05¼	
Grade C, 80-90, 375 e.p., rec. 78%	.05¼	.05½	.05½		.05	
NORTH LOUISIANA—						
Grade AA, 80-87, 375 e.p., rec. 90%	.07		.06¾		.05½	.05¾
Grade BB, 84-92, 375 e.p., rec. 85%	.05¾	.06	.05¾	.06	.05¾	
Grade C, 80-92, 375 e.p., rec. 78%	.05½	.05¾	.05½		.05¼	.05½
CALIFORNIA—						
75-78, 375-390 endpoint	.08	.08½	.08	.08½	.08	.08½
CHICAGO DISTRICT (Based on Group 3)—						
Grade A, 72-79.9, 375 e.p., rec. 90%	.07¼	.07½	.07	.07¼	.06½	.07
Grade AA, 80-87.9, 375 e.p., rec. 90%	.06½	.06⅝	.06¼	.06½	.05¼	.05½
Grade B, 76-83.9, 375 e.p., rec. 85%	.05¾		.05¾		.05⅝	
Grade BB, 84-92, 375 e.p., rec. 85%	.05½		.05½	.05¾	.05¼	
Grade C, 80-90, 375 e.p., rec. 78%	.05¼		.05½		.05	

BURNING OIL

	Jan. 29		Jan. 22		Jan. 15	
OKLAHOMA (Group 3)—						
41-43 water white Kerosene	.05	.05¼	.05¼	.05½	.05¼	.05½
42-44 water white Kerosene	.05⅞	.06	.06		.05¾	.06
NORTH LOUISIANA—						
41-43 water white Kerosene	.05¾	.06	.06	.06¼	.06	.06¼
NORTH TEXAS—						
41-43 water white Kerosene	.05¼	.05½	.05⅜	.05½	.05¼	.05⅜
40-42 water white Kerosene	.05¼		.05¼	.05⅜	.05⅛	.05¼
ARKANSAS—						
41-43 water white Kerosene	.05¾	.06	.06		.06	.06¼
PENNSYLVANIA—						
43 Kerosene prime white	.06¾	.07	.07	.07⅛	.07	.07⅛
45 Kerosene water white	.07	.07⅛	.07⅛	.07¼	.07⅛	.07¼
46 Kerosene water white	.07½	.07¾	.07½	.07¾	.07½	.07¾
47 Kerosene water white	.07½	.07¾	.07½	.07¾	.07¾	.08
300 Mineral Seal	.07	.07¼	.07	.07¼	.07	.07¼
CALIFORNIA—						
38-40 water white Kero. (high-burning test)	.06	.06½	.06½	.07	.06¼	.07
Engine distillate, 43-44, 445 endpoint	.07½	.08	.07½	.08	.07½	.08
Engine distillate, 42-44, 480 endpoint	.07	.07½	.07	.07½	.07	.07½
CHICAGO DISTRICT (Based on Group 3)—						
41-43 water white Kerosene	.05	.05¼	.05¼	.05½	.05¼	.05½
42-44 water white Kerosene	.05¾	.06	.05¾	.06	.05¾	.06

FUEL OILS

	Jan. 29		Jan. 22		Jan. 15	
OKLAHOMA (Group 3)—						
Below 18 Fuel Oil, per bbl.	.50	.55	.50	.55	.50	.55
18-22 Fuel Oil, per bbl.	.55	.57½	.55	.57½	.55	.57½
22-26 Fuel Oil, per bbl.	.60	.62½	.60	.62½	.60	.62½
24-26 Fuel Oil, per bbl.	.65	.67½	.62½	.65	.62½	.65
26-30 Fuel Oil, per bbl.	.67½	.70	.65	.70	.65	.70
28-30 Fuel Oil, per bbl. (industrial)	.82½	.85	.80	.82½	.80	.82½
28-30 Fuel Oil, per bbl. (zero cold test)	.95	1.00	.92½	.95	.90	.92½
32-36 Gas Oil (dark)	.02⅝	.02¾	.02⅝	.02¾	.02⅝	.02¾
32-36 Gas Oil (straw color)	.02¾	.03¼	.02¾	.03¼	.02¾	.03¼
36-38 Distillate	.03¼	.03½	.03¼	.03¼	.03¼	.03½
38-40 Straw Distillate	.03¾	.03⅞	.03½	.03¾	.03½	.03¾
NORTH TEXAS—						
Below 20 Fuel Oil	.57½	.60	.55	.57½	.50	.52½
24-26 Fuel Oil, per bbl	.60	.65	.55	.60	.52½	.57½
32-36 Gas Oil (straw)	.02⅝	.02⅞	.02⅝	.02¾	.02½	.02⅝
38-40 Straw Distillate	.03⅝	.03¾	.03½	.03¾	.03¾	.03⅞
NORTH LOUISIANA—						
18-20 Fuel Oil, per bbl.	.75		.75		.75	
32-36 Gas Oil	.03		.03		.03	
ARKANSAS—						
33-36 Distillate	.03¼	.03½	.03¼	.03½	.03¼	.03½
32-36 Gas Oil (straw)	.03		.03		.03	
16-22 Refinery Fuel Oil, per bbl.	.65	.70	.75		.75	
GULF COAST (South Texas)—						
Gas Oil	.04¼	.04½	.04¼	.04½	.04¼	.04½
Bunker C Fuel, per bbl.	.80	.90	.80	.90	.80	.90
PENNSYLVANIA—						
30-34 Fuel Oil	.04½	.04⅝	.04¾	.04⅝	.04¾	.04⅞
36-40 Fuel Oil	.04⅝	.04¾	.04¾	.04⅞	.04¾	.04⅞
CALIFORNIA—						
33-36 Distillate	.03¾	.04	.03¾	.04	.03¾	.04
27-32 Distillate	.03	.03½	.03	.03½	.03	.03½
*15-20 Fuel Oil, Bunker (at tide water)	.75	.85	.75	.85	.75	.85
15-20 Fuel Oil (cargo lots), per bbl.	.70	.85	.70	.85	.70	.85
27 plus Diesel, per bbl.	.95	1.05	.95	1.10	.95	1.10
CHICAGO DISTRICT (Based on Group 3)—						
22-26 Fuel Oil, Group 3, bbl.	.60	.65	.60	.65	.60	.65
18-22 (Group 3), per bbl	.55	.60	.55	.60	.52½	.55
16-20 Smackover, per bbl.	.85	.90	.85	.90	.80	.85
28-30 Fuel Oil (zero)	.95	1.00	.95	1.00	.92½	1.00
32-36 Gas Oil, zero	.03	.03¼	.03	.03¼	.02¾	.03
32-36 Gas Oil (industrial)	.02¾	.02⅞	.02¾	.02⅞	.02½	
36-38 Distillate	.03⅝	.03¾	.03¼	.03½	.03¼	.03
38-40 Straw Distillate	.03¾	.03⅞	.03½	.03¾	.03⅝	.03

*Bunker.

LUBRICATING OIL AND WAX

	Jan. 29		Jan. 22		Jan. 15	
OKLAHOMA (Group 3)—						
100 vis., 2 color, 20-25 cold test	.06	.06½	.06	.06½	.06	.06
100 vis., 3 color, 20-25 cold test	.05¼	.05½	.05½	.05½	.06	
150 vis., 3 color, 20-25 cold test	.07¼	.07½	.07¼	.07½	.08	.08
150 vis., 4 color, 20-25 cold test	.07	.07¼	.07	.07¼	.08	
180 vis., 3 color, 23-28 cold test	.08¾	.09	.08¾	.09	.09¼	.09
180 vis., 4 color, 23-28 cold test	.08¼	.08¾	.08½	.08¾	.09	.09
180 vis., 5 color, 23-28 cold test	.08¼	.08½	.08¼	.08½	.09	.09
200 vis., 3 color, 23-28 cold test	.09¼	.09½	.09¼	.09½	.09¼	.09
200 vis., 4 color, 23-28 cold test	.09	.09¼	.09	.09¼	.09¼	.09
200 vis., 5 color, 23-28 cold test	.08½	.08¾	.08½	.08¾	.09	.09
240 vis., 3 color, 25-30 cold test	.12¼	.12½	.12¼	.12½	.13½	.13
240 vis., 4 color, 25-30 cold test	.11¾	.12	.11¾	.12	.13	.13
240 vis., 5 color, 25-30 cold test	.10¾	.11	.10¾	.11	.12	.12
280 vis., 3 color, 25-30 cold test	.13¾	.14	.13¾	.14	.15¼	.15
280 vis., 4 color, 25-30 cold test	.12¾	.13	.12¾	.13	.14¾	.15
280 vis., 5 color, 25-30 cold test	.11¾	.12	.11¾	.12	.13¾	.14
Cylinder Stocks:						
600, steam refined, light green	.09	.12	.09	.12	.09	.11
600, steam refined, dark green	.08	.10	.08	.10	.08	.09
190-200 vis. @ 210 Bright Stock	.31	.35	.31	.35	.30	.33
150-160 vis. @ 210 Bright Stock	.28	.31	.28	.31	.28	.31
Waxes:						
124-126 White Crude Scale Wax	.04¾		.04¾		.05	
PENNSYLVANIA—						
34 Neutral	.07½	.07¾	.07½	.07¾	.07½	.07¾
34 Sundebloom	.07¾	.08	.07¾	.08	.08¼	.08½
36 Miners' Neutral	.07¼	.07½	.07¼	.07½	.07⅛	.07⅝
150, 3 color	.21½	.22	.21½	.22	.21½	.22
180, 3 color	.25½	.26	.25½	.26	.25½	.26
200, 3 color	.28	.28½	.28	.28½	.28½	.29
220, 3 color	.30	.30½	.30	.30½	.30½	.31
600, steam refined	.22½	.23	.22½	.23	.23½	.24
635, steam refined	.27½	.28	.27½	.28	.28½	.29
650, steam refined	.29½	.30	.29½	.30	.29½	.30
600, Pennsylvania flash	.31½	.32	.31½	.32	.31½	.32
630, Pennsylvania flash	.36½	.37	.36½	.37	.36½	.37
600, E filtered	.26½	.27	.26½	.27	.26½	.27
600, D filtered	.29½	.30	.29½	.30	.28½	.29
550, E filtered	.15½	.16	.15½	.16	.15½	.16
550, D filtered	.21½	.22	.21½	.22	.21½	.22
Pennsylvania Bright Stock	.39	.40	.39	.40	.39	.40
†122-124 White Crude Scale Wax	.05	.05¼	.05	.05¼	.05¼	.05½
†124-126 White Crude Scale Wax	.05¼	.05⅜	.05¼	.05⅜	.05⅜	.05½

*At Warren, Pa. †At New York.

GULF COAST (South Texas)—						
No. 2 color, 100 vis., pale oil	.06½	.07	.06½	.07	.06½	.07
No. 3 color, 200 vis., pale oil	.08½	.09	.08½	.09	.08½	.09
No. 3 color, 300 vis., pale oil	.11	.11½	.11	.11½	.11	.11½
No. 3½ color, 500 vis., pale oil	.12½	.13	.12½	.13	.12½	.13
No. 4 color, 750 vis., pale oil	.15	.15½	.15	.15½	.15	.15½
No. 5 to 6 color, 200 vis., red oil	.08¼	.08½	.08¼	.08½	.08¼	.08½
No. 5 to 6 color, 300 vis., red oil	.09¼	.09½	.09¼	.09½	.09¼	.09½
No. 5 to 6 color, 500 vis, red oil	.10½	.11½	.10½	.11½	.10½	.11½
No. 5 to 6 color, 750 vis., red oil	.13¼	.14	.13¼	.14	.13¾	.14
No. 2½ color, 200 vis., pale filtered	.11¾	.12¼	.11¾	.12¼	.11¾	.12¾
No. 2½ color, 300 vis., pale filtered	.13½		.13½		.13½	
No. 2½ color, 500 vis., pale filtered	.15½	.16	15½	.16	.15½	.16
No. 2¼-3 color, 750 vis., pale filtered	18	.20	.18	.20	.18	.20
CALIFORNIA—						
130 vis., 2½-3 color	.10¼	.10½	.10¼	.10¼	.10¼	.10½
200 vis., 2½-3 color	.11½	.11¾	.11½	.11¾	.11½	.11¾

REFINERY AND CRUDE PRICES

Quotations on refined products are for interstate or export movement unless otherwise noted.

300 vis., 3-3½ color	.13	.13¼	.13	.13¼	.13	.13¼
350 vis., 3½-4 color	.13½	.13¾	.13½	.13¾	.13½	.13¾
400 vis., 3½-4 color	.15	.15½	.15	.15½	.15	.15½
Red Neutral:						
200 vis., 4½-5 color	.11	.11¼	.11¼	.11½	.11¼	.11½
300 vis., 5-6 color	.12	.12¼	.11¾	.12	.11¾	.12
400 vis., 5-6 color	.13¼	.14	.13½	.14	.13½	.14
500 vis., 4½-5 color	.15¼	.15½	.15¼	.15½	.15¼	.15½
290 vis., 5-6½ color	.15	.15¼	.15	.15¼	.15	.15¼
600 vis., 6½ plus color	.16	.16¼	.15½	.15¾	.15½	.15¾

Note: Bright stocks are not manufactured commercially on the Pacific Coast.

NEW YORK (BAYONNE) REFINERY PRICES

	Jan. 29	Jan. 22	Jan. 15
Gasoline, U. S. Motor, 58-60, 437	.10¼	.10¼	.10½
Kerosene, water white, 41-43	.09	.09	.09
*Fuel Oil, Bunker "C," 14-16, per bbl.	1.05	1.05	1.05
†Fuel Oil, Diesel, 28-30, per bbl.	2.00	2.00	2.00
Gas Oil, 32-36 gravity	.05¼	.05¼	.05¼
25 pale Paraffin Oil	.11¾	.11¾	.11¾
28 pale Paraffin Oil	.07½	.07½	.07½
28 red Paraffin Oil	.11½	.11½	.11½
250 red Paraffin Oil	.11	.11	.11
225 red Paraffin Oil	.09½	.09½	.09½
200 red Paraffin Oil	.09	.09	.09
Refined Wax:			
120-122 a.m.p., per lb.	.05¾	.05½	.05¾
125-127 a.m.p., per lb.	.05¾	.05¾	.05¾
130-132 a.m.p., per lb.	.06¾	.06½	.06¾
133-135 a.m.p., per lb.	.07⅛	.07¼	.07⅛
135-137 a.m.p., per lb.	.07¾	.07¾	.07¾
Petrolatum in barrels, carloads lots, per lb.:			
Dark green	.02	.02	.02
Amber	.03½	.03½	.03½
Extra amber	.03¾	.03¾	.03¾
Cream	.06½	.06½	.06½
Lily white	.07½	.07½	.07½
Snow white	.08½	.08½	.08½

*Lighterage, 5.0c a barrel extra. †Lighterage, 6.5c a barrel extra.

NEW YORK (BAYONNE) EXPORT PRICES

	Jan. 29		Jan. 22		Jan. 15	
Gasoline, U. S. Motor, 58-60 437, in cases	.2640		.2640		.2640	
Kerosene, standard white, in cases	.1765		.1765		.1765	
Kerosene, water white, in cases	.1890		.1890		.1890	
600, steam refined cylinder stocks, in bbls.	.31	.32	.31	.32	.31	.32
625, steam refined	.32	.33	.32	.33	.32	.33
650, steam refined	.37	.38	.37	.38	.37	.38
600, Pennsylvania flash	.39	.40	.39	.40	.39	.40
630, Pennsylvania flash	.43	.44	.43	.44	.43	.44
600, Warren E	.34	.35	.34	.35	.34	.35
600, Oil City E	.33		.33		.33	
Light 140-150 Bright Stocks	.47		.47		.49	.50
Dark 140-150 Bright Stocks	.46		.46		.48	.48½

LOS ANGELES EXPORT PPICES

	Jan. 29		Jan. 22		Jan. 15	
Kerosene, water white	.05½	.06	.05½	.06	.05½	.06
U. S. Motor Gasoline, 53-55, 437 e.p.	.07½	.08	.07½	.08	.07½	.08

CRUDE OIL PRICES

OKLAHOMA, KANSAS, NORTH AND EAST CENTRAL TEXAS

Corsicana heavy (January 11) ..... .80
Other fields ..... See gravity table

*Posted by Magnolia Petroleum Co.

TEXAS PANHANDLE
Carson and Hutchinson

Below 32 gravity ..... $ .72
32-32.9 ..... .78
33-33.9 ..... .81
34-34.9 ..... .84
35-35.9 ..... .87
36-36.9 ..... .90
37-37.9 ..... .93
38-38.9 ..... .96
39-39.9 ..... .99
40-40.9 ..... 1.02
41-41.9 ..... 1.05
42-42.9 ..... 1.08
43-43.9 ..... 1.11
44 and above 1.14

Wheeler County

Below 30 gravity ..... $ .70
30-30.9 ..... .76
31-31.9 ..... .82
32-32.9 ..... .88
33-33.9 ..... .91
34-34.9 ..... .94
35-35.9 ..... .97
36-36.9 ..... 1.00
37-37.9 ..... 1.03
38-38.9 ..... 1.06
39-39.9 ..... 1.09
40-40.9 ..... 1.12
41-41.9 ..... 1.15
42-42.9 ..... 1.18
43-43.9 ..... 1.21
44 and above 1.24
Gray County ..... See gravity table

Humble Oil & Refining Co., and Magnolia Petroleum Co., January 24, 1929.

WEST TEXAS

Iatan* ..... Same as North Texas
Crane-Upton-Crockett, Pecos, Winkler and Glasscock (July 26)† ..... $ .65
Chalk† ..... .65
Ritchell† ..... .65

*Includes Howard County and Westbrook Fields. Mariand Refining Co. pays $1.05 for Howard County crude, effective May 21.
†Magnolia Petroleum Co., January 26, 1929.
‡Posted by Humble Oil & Refining Co., Magnolia Petroleum Co., and Gulf Pipe Line Co.

ARKANSAS-NORTH LOUISIANA

Cotton Valley (Below 36 gravity April 11) ..... $ .75
Bellevue (January 26, 1929) 1.20
Urania (Oct. 16, 1928) ..... .90
East El Dorado (March 16, 1927) 1.00
Other fields ..... See gravity table

*Cotton Valley crude above 36 gravity takes same gravity price schedule as shown for North Louisiana and Arkansas crude in Mid-Continent gravity price table.

Note—Cotton Valley and Bellevue posted by Standard Oil Co. of Louisiana, Louisiana Oil Refining Co., Gulf Refining Co., and Magnolia Petroleum Co.; Urania posted by Louisiana Oil Refining Corp.; East El Dorado, Magnolia Petroleum Co., Gulf Refining Co.

GULF COAST

(Goose Creek, Hull, Liberty, West Columbia, Orange Boling, Sour Lake, Humble, Sugarland, Raccoon Bend, High Island, Pierce Junction and Spindletop.)
Grade A (March 14)* $1.20
Grade B ..... See gravity table
Jennings, La. (March 14)† $1.05
Saratoga, Batson, Daytona, (March 14, 1927)‡ 1.20
Markham (March 14)§ 1.00
High Island (December 14)¶ 1.00

*Humble Oil & Refining Co. and other major buyers. †Gulf Pipe Line Co. ‡Sun Pipe Line Co. §The Texas Company. ¶Posted by Gulf Pipe Line Co.

ROCKY MOUNTAIN STATES
Ohio Oil Co.-Midwest Refining Co.
(Effective January 25, 1929)

Rock Creek, Wyo. $1.18
Salt Creek ..... See gravity table
Big Muddy 1.28
Grass Creek, heavy (July 27, 1928) ..... .90
Grass Creek, light 1.36
Mule Creek (May 1, 1928) 1.16
Elk Basin 1.36
Lance Creek 1.38
Poison Spider (March 14, 1927) 1.00
Notches (March 14, 1927) ..... .65
Rex Lake (February 22) 1.10
Osage 1.38
Lost Soldier (contract) ..... .95

(Continued on Page 246)

CRUDE OIL GRAVITY TABLE

Gravity—	Okla., Kans. N. C. Tex. 1	No. La. and Arkansas 2	Smackover, Ark. 3	Stephens, Ark. 4	Gray County (Texas Panhandle) 5	Salt Creek, Wyo. 6	Grade B & Light Crude (G. Coast) 7	Somerset (South Central Texas) 8
24 and above	....	....	.90	....	....	....	....	....
Below 24	....	....	.75	....	....	....	....	....
Below 25	.60	....	....	....	....	....	1.05	....
25 to 25.9	.66	....	....	....	....	....	1.07	....
Below 26	....	....	....	....	....	....	....	....
26 to 26.9	.72	....	....	....	....	....	1.09	....
27 to 27.9	.78	....	....	....	....	....	1.11	....
Below 28	....	.78	....	.70	.69	....	....	....
28 to 28.9	.84	.84	....	.73	.69	....	1.13	....
29 to 29.9	.90	.90	....	.78	.75	.96	1.15	....
30 to 30.9	.96	.96	....	.82	.81	.96	1.17	....
31 to 31.9	1.02	1.02	....	.86	.87	1.02	1.19	....
32 to 32.9	1.08	1.08	....	.90	.93	1.08	1.21	1.05
33 to 33.9	1.11	1.13	....	....	.96	1.11	1.23	1.07
34 to 34.9	1.14	1.14	....	....	.99	1.14	1.25	1.09
35 to 35.9	1.17	1.17	....	....	1.02	1.17	1.27	1.11
36 to 36.9	1.20	1.20	....	....	1.05	1.20	....	1.13
37 to 37.9	1.23	1.23	....	....	1.08	1.23	....	1.15
38 to 38.9	1.26	1.26	....	....	1.11	....	....	1.17
39 to 39.9	1.29	1.29	....	....	1.14	....	....	....
40 to 40.9	1.32	1.32	....	....	1.17	....	....	....
41 to 41.9	1.35	1.35	....	....	1.20	....	....	....
42 to 42.9	1.38	1.38	....	....	1.23	....	....	....
43 to 43.9	1.41	1.41	....	....	1.26	....	....	....
44 and above	1.44	1.44	....	....	1.29	....	....	....

Column 1, Note—Magnolia Petroleum Co. posted schedule January 24, 1929, making price below 26 gravity 60 cents per barrel, 26-26.9 gravity 66 cents, 27-27.9 gravity 70 cents, 28-28.9 gravity 75 cents, 29-29.9 gravity 80 cents, 30-30.9 gravity 90 cents and 31-31.9 gravity $1, with balance of the price schedule as shown.

Oklahoma—Humble Oil & Refining and Carter Oil Co. January 24. Prairie Oil & Gas Co., Sinclair Oil & Gas Co., Gypsy Oil Co., The Texas Company, January 25.

North Central Texas—Including Ranger, Mexia, Powell, Richland, Wortham, Lytton Springs (Southwest Texas, Iatan and Panola, Iatan posted a flat price of 93 cents by Magnolia on January 14, 1928), Currie, Nocona and Moran. Prairie, Sinclair and Gulf, The Texas Company, January 25, Humble Oil & Refining Co., January 24.

Kansas—Prairie, Sinclair and The Texas Company, January 25; Carter, January 24.

Column 2—Arkansas and North Louisiana—[Caddo, Bull Bayou, Crichton, DeSoto, Haynesville, Homer, and El Dorado only], Standard Oil Co. of Louisiana, Louisiana Oil Refining Corp., Gulf Refining Co., Magnolia Petroleum Co., schedule effective January 26 applies to Pine Island, Haynesville, Bull Bayou, Louisiana, and ElDorado, Ark., light crude. The Texas Company January 24 posted prices below 28 gravity at 6 cents differential per degree with minimum of 60 cents for all below 24 gravity.

Column 3—February 6, Louisiana Oil Refining Corp.; February 7, Standard Oil Co. of Louisiana, The Texas Company, Gulf Refining Co., Magnolia Petroleum Co., and on February 10, Atlantic Oil Producing Co.

Column 4—Atlantic Oil Producing Co., Louisiana Oil Refining Corp., January 28.

Column 5—Humble Oil & Refining Co., Magnolia Petroleum Co., January 24, 1929.

Column 6—Midwest Refining Co., January 25, 1929. All crude over 37 gravity $1.23 per barrel.

Column 7—Humble Oil & Refining Co. and other major buyers January 26 (schedule ends 35 and above), with exception of Magnolia Petroleum Co., which stops at 31 degrees gravity. Sun Pipe Line Co. and The Texas Company posted 2 cents differential for each degree above 35 gravity and $1.37 for 40 gravity and above.

Column 8—Grayburg Pipe Line Co. and Pioneer Oil & Refining Co., April 7.

CALIFORNIA CRUDE OIL PRICES

Standard Oil Co.-Union Oil Co. (Effective January 18, 1929)

Gravity—	Richfield Torrance Olinda-Brea Alamitos Hts. Signal Hill Seal Beach Huntington Beach Athens Rosecrans-Dominguez Inglewood 1	Whittier La Habra Coyote Hills 2	Midway-Sunset Elk Hills Lost Hills Belridge Buena Vista Hills 3	Montebello 4	Santa Fe Springs 5	Coalinga 6	Wheeler Ridge 7	Orcutt 8	Ventura 9	Kern River† Newhall-McKittrick 10
14 to 14.9	.70	.70	.50	.70	....	.50	.50	.85	.85	.50
15 to 15.9	.70	.70	.50	.70	....	.50	.50	.85	.85	.50
16 to 16.9	.70	.70	.50	.70	....	.50	.50	.85	.85	.50
17 to 17.9	.70	.70	.50	.70	....	.50	.50	.85	.85	.50
18 to 18.9	.75	.75	.56	.70	....	.56	.56	.85	.85	.50
19 to 19.9	.80	.80	.62	.75	....	.62	.62	.85	.85	.50
20 to 20.9	.85	.84	.68	.80	....	.68	.68	.85	.85	....
21 to 21.9	.89	.88	.74	.85	.89	.74	.74	.86	.86	....
22 to 22.9	.93	.91	.80	.90	.92	.80	.80	.87	.87	....
23 to 23.9	.97	.94	.85	.95	.95	.85	.85	.90	.90	....
24 to 24.9	1.01	.97	.90	.98	.98	.88	.88	.93	.94	....
25 to 25.9	1.05	1.00	.95	1.01	1.01	.91	.91	.95	.98	....
26 to 26.9	1.09	1.04	1.00	1.04	1.04	.94	.94	.97	1.02	....
27 to 27.9	1.13	1.08	1.05	1.07	1.07	.98	.97	....	1.06	....
28 to 28.9	1.17	1.12	1.10	1.10	1.10	1.02	....	....	1.10	....
29 to 29.9	1.21	1.16	1.13	1.13	1.15	1.06	....	....	1.14	....
30 to 30.9	1.25	1.20	1.22	1.16	1.20	1.10	....	....	1.18	....
31 to 31.9	1.30	....	1.28	....	1.25	1.14	....	....	1.23	....
32 to 32.9	1.35	....	1.34	....	1.30	1.18	....	....	1.28	....
33 to 33.9	1.41	....	1.40	....	1.35	1.22	....	....	....	....
34 to 34.9	1.47	....	1.46	....	1.40	1.26	....	....	....	....
35 to 35.9	1.53	....	....	....	1.45	1.30	....	....	....	....
36 to 36.9	1.59	....	....	....	1.50	....	....	....	....	....
37 to 37.9	1.65	....	....	....	1.55	....	....	....	....	....
38 to 38.9	1.71	....	....	....	1.60	....	....	....	....	....
39 to 39.9	1.77	....	....	....	1.65	....	....	....	....	....
40 to 40.9	1.83	....	....	....	....	....	....	....	....	....
41 to 41.9	1.89	....	....	....	....	....	....	....	....	....
42 to 42.9	1.95	....	....	....	....	....	....	....	....	....

*Column 1—Signal Hill, Seal Beach, Huntington Beach and Alamitos Heights crude, 14 to 32.9 gravity, inclusive; Richfield, Olinda-Brea and Fullerton, 14 to 30.9 gravity; Torrance and Inglewood, 14 to 28.9 gravity, Dominguez and Athens-Rosecrans, 24 to 42.9 gravity.

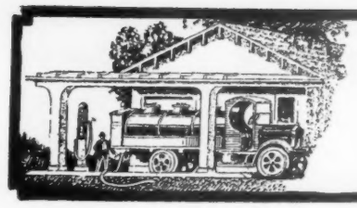
Column 2—Whittier crude, 14 to 32.9 gravity; Coyote Hills, 14 to 30.9 gravity.

Column 3—Kern River, Newhall and McKittrick, 14 to 19.9 gravity; Midway-Sunset, Buena Vista and Elk Hills, 14 to 33.9 gravity; Lost Hills, 14 to 34.9 gravity.

Columns 8 and 9 posted by Union Oil Co. only.

†On October 2, 1928, Standard Oil Co. of California discontinued contracting for purchase of Kern River crude and on October 20 established following prices on grades below 14 gravity: 11 to 11.9 degrees at 45 cents, 12 to 19 degrees at 50 cents.

On December 1, 1928, the Union Oil Co. adopted the above schedule of the Standard on Kern River crude and in addition posted Midway-Sunset, Elk Hills, Buena Vista, Lost Hills and Coalinga crude as follows: 11-11.9 gravity, 45 cents; 12 to 12.9 gravity, 55 cents; and 13 to 13.9 gravity at 65 cents. All grades of Elwood crude were cut 7 cents.



TANK WAGON MARKETS

Tank wagon quotations for gasoline and kerosene in United States as furnished by the larger marketing concerns Jan. 29.

ALL TANK WAGON AND SERVICE STATION QUOTATIONS INCLUDE TAXES

STANDARD OIL CO. (INDIANA)

	Gasoline			Kero.
	Tank wagon	Service station	Incl'ds tax of	tank wagon
Chicago, dist.	14.0	15.0	...	12.0
Decatur, Ill.	14.2	15.2	...	12.1
E. St. Louis	13.4	14.4	...	11.2
Joliet	14.4	15.4	...	12.3
Peoria	14.2	15.2	...	12.1
Quincy	14.2	15.2	...	11.9
Davenport, Ia.	17.5	18.5	3.0	12.3
Des Moines	17.5	18.5	3.0	12.3
Keokuk	17.5	18.5	3.0	12.3
Sioux City	17.1	18.1	3.0	11.9
Duluth, Minn.	17.5	18.5	2.0	12.9
Mankato	17.1	18.1	2.0	12.7
Minneapolis	17.1	18.2	2.0	12.9
La Crosse, Wis.	17.2	18.2	2.0	13.0
Milwaukee	16.1	17.1	2.0	11.9
Madison	16.3	17.3	2.0	12.1
Detroit, Mich.	17.8	18.8	3.0	13.7
Grand Rapids	17.7	18.7	3.0	13.6
Saginaw	17.9	18.9	3.0	13.8
Evansville, Ind.	17.0	18.0	3.0	13.0
Fort Wayne	17.4	18.4	3.0	13.4
Indianapolis	17.2	18.2	3.0	13.2
South Bend	17.4	18.4	3.0	13.4
Fargo, N. D.	18.9	19.9	2.0	14.9
Huron, S. D.	19.3	20.3	4.0	13.7
Sioux Falls	18.1	19.1	4.0	13.4
K. C., Mo.*	16.9	17.9	3.0	10.6
Springfield*	16.8	17.8	3.0	11.5
St. Louis*	15.9	16.9	2.5	11.3
St. Joseph	16.5	16.5	3.0	11.2
Wichita, Kans.	14.8	15.8	2.0	10.8
Bartlesville, Ok.	15.5	16.5	3.0	10.5

*State tax 2 cents; remainder city tax.

NAPHTHA

	Tank wagon	Tank car
Oleum spirits	14.7	11.9
V. M. & P. naphtha	16.2	12.9
Cleaner's naphtha	18.0	13.9
Stanisol	19.0	14.9

Tank wagon prices f.o.b. Chicago; tank car prices f.o.b. Whiting. Effective January 5.

STANOLIND FURNACE OIL IN CHICAGO

Less than 100 gallons	9.0
100 to 799 gallons	8.0
800 or more gallons	7.5

Note—Outside Chicago furnace oil discount of 1 cent per gallon is given on deliveries of 100 to 349 gallons and 1½ cents on deliveries of 350 gallons or more.

The following quantity discounts from the service station prices are allowed on monthly sales of gasoline: 2,000 gallons or less, 2 cents; more than 2,000 and less than 6,000 gallons, 2¼ cents; more than 6,000 gallons, 3 cents. Discounts are allowed each month, and they are not cumulative. Delivery tickets showing date and quantity delivered must be sent to the seller before the tenth of the month to secure the discount on the previous month's purchases.

SOUTHERN DISTRICT

Standard Oil Co. (Kentucky)

	Gasoline			Kero.
	Tank wagon	Service station	Incl'ds tax of	tank wagon
Atlanta, Ga.	22.0	24.0	4.0	16.5
Augusta	22.0	24.0	4.0	15.5
Macon	22.0	22.0	4.0	16.5
Savannah	21.0	23.0	4.0	14.5
Birm'ham, Ala.	20.0	22.0	4.0	13.0
Mobile	22.0	24.0	4.0	15.0
Montgomery	23.0	25.0	4.0	16.5
Clarks'le, Miss.	22.0	24.0	5.0	13.0
Jackson	19.0	21.0	5.0	14.5
Natchez	20.0	22.0	5.0	14.0
Gulfport	23.5	25.5	5.0	14.0
Vicksburg	21.5	23.5	5.0	14.0
Jack'ville, Fla.	23.0	25.0	5.0	13.5
Miami	24.0	26.0	5.0	15.5
Pensacola	24.0	26.0	5.0	13.5
Tampa	23.0	25.0	5.0	13.5
Lexington, Ky.	21.0	22.0	5.0	15.5
Covington	21.0	22.0	5.0	15.5
Louisville	21.0	23.0	5.0	15.0
Ashland	22.0	24.0	5.0	15.5
Catlettsburg	22.0	24.0	5.0	15.5

In addition to the state tax of 4 cents on gasoline, Montgomery has city tax of 1 cent on gasoline and one-half cent on kerosene. Kerosene prices in Georgia include 1-cent tax. In Florida, an inspection fee of 0.125 cent; in Alabama, an inspection fee of one-half cent on kerosene and one-fourth cent on gasoline. Pensacola and Mobile taxes include 1-cent city levy. Gulf port tax includes privilege tax of 2 cents in addition to state tax.

PACIFIC COAST TERRITORY

Standard Oil Co. (California)

	Gasoline			Kero.
	Tank wagon	Service station	Incl'ds tax of	tank wagon
San Francisco	17.0	21.0	3.0	15.5
Los Angeles	16.5	20.5	3.0	15.5
Reno, Nev.	22.0	26.0	4.0	19.0
Portland, Ore.	17.5	21.5	3.0	16.5
Seattle, Wash.	16.5	20.5	2.0	16.5
Tacoma	16.5	20.5	2.0	16.5
Spokane	20.5	24.5	2.0	20.5
Phoenix, Ariz.	18.0	22.0	4.0	20.5

SOUTHWESTERN DISTRICT

Magnolia Petroleum Co.

	Gasoline			Kero.
	Tank wagon	Service station	Incl'ds tax of	tank wagon
Dallas, Tex.	16.0	20.0	2.0	12.0
Fort Worth	13.0	16.0	2.0	12.0
Houston	16.0	20.0	2.0	13.0
San Antonio	13.0	17.0	2.0	11.0
El Paso	17.0	20.0	2.0	16.0
Texarkana	16.0	19.0	2.0	13.0
Muskogee, Ok.*	15.0	16.0	3.0	12.0
Okla. City*	16.0	18.0	3.0	12.0
Tulsa*	17.0	19.0	3.0	10.0
Ft. Smith, Ark.	18.0	19.0	5.0	13.0
Little Rock	18.0	21.0	5.0	13.0

*Gasoline tank wagon price to dealers 2 cents under posted tank wagon.

NEBRASKA

Standard Oil Co. (Nebraska)

	Gasoline			Kero.
	Tank wagon	Service station	Incl'ds tax of	tank wagon
Omaha	17.25	19.25	2.0	12.25
McCook	18.75	20.75	2.0	13.75
Norfolk	17.75	19.75	2.0	12.75
N. Platte	18.75	20.50	2.0	13.50
Scotsbluff	18.75	20.75	2.0	13.25

ROCKY MOUNTAIN DISTRICT

Continental Oil Co.

	Gasoline			Kero.
	Tank wagon	Service station	Incl'ds tax of	tank wagon
Denver, Colo.	16.0	19.0	3.0	14.5
Pueblo	17.0	20.0	3.0	14.5
Grand Junction	22.5	25.5	3.0	18.0
Casper, Wyo.	19.0	22.0	3.0	13.0
Cheyenne	20.0	23.0	3.0	14.5
Butte, Mont.	23.5	26.5	3.0	19.0
Helena	23.5	26.5	3.0	19.0
Salt Lake, Utah	22.0	25.0	3.5	17.0
Albu'que, N. M.	22.0	25.0	5.0	17.0
Boise, Idaho	24.5	27.5	4.0	19.0
Twin Falls	24.5	27.5	4.0	19.0

ATLANTIC COAST DISTRICT

Standard Oil Co. (New Jersey)

	Gasoline			Kero.
	Tank wagon	Service station	Incl'ds tax of	tank wagon
Atlantic City	16.0	20.0	2.0	13.0
Newark, N. J.	16.0	20.0	2.0	13.0
Annapolis, Md.	18.0	22.0	4.0	13.0
Baltimore	18.0	22.0	4.0	13.0
Cumberland	18.0	22.0	4.0	13.0
Washington	16.0	20.0	2.0	13.0
Danville, Va.	19.0	23.0	5.0	13.0
Norfolk	19.0	23.0	5.0	13.0
Petersburg	19.0	23.0	5.0	13.0
Roanoke	19.0	23.0	5.0	13.0
Richmond	19.0	23.0	5.0	13.0
Ch'rist'n, W. Va.	18.0	22.0	4.0	13.0
Keyser	18.0	22.0	4.0	13.0
Parkersburg	18.0	22.0	4.0	13.0
Wheeling	18.0	22.0	4.0	13.0
Charlotte, N. C.	18.0	22.0	4.0	13.0
Hickory	18.0	22.0	4.0	13.0
Mt. Airy	18.0	22.0	4.0	13.0
Salisbury	18.0	22.0	4.0	13.0
Ch'leston, S. C.	19.0	23.0	5.0	13.0
Columbia	19.0	23.0	5.0	13.0

NEW YORK AND PART OF NEW ENGLAND DISTRICT

Standard Oil Co. (New York)

	Gasoline			Kero.
	Tank wagon	Service station	Incl'ds tax of	tank wagon
Albany, N. Y.	18.0	20.0	...	15.0
New York*	16.0	18.0	...	15.0
Buffalo	17.0	19.0	...	14.0
Rochester	17.0	19.0	...	14.0
Syracuse	17.0	19.0	...	15.0
Boston, Mass.	18.0	20.0	2.0	15.0
Augusta, Me.	20.0	22.0	4.0	15.0
Manch't'r, N.H.	20.0	22.0	4.0	15.0
Burlington, Vt.	20.0	21.0	4.0	15.0

*Prices in steel barrels.

CENTRAL SOUTH DISTRICT

Standard Oil Co. (Louisiana)

	Gasoline			Kero.
	Tank wagon	Service station	Incl'ds tax of	tank wagon
N.Orleans, La.*	17.5	20.5	5.0	16.0
Baton Rouge	16.0	19.0	4.0	14.5
Alexandria	17.0	20.0	4.0	16.0
LaFayette	17.0	20.0	4.0	14.0
Lake Charles	17.5	20.5	4.0	16.0
Shreveport	16.0	19.0	4.0	15.0
Knoxv'le, Tenn.	19.0	22.0	3.0	16.0
Memphis	16.0	20.0	3.0	12.5
Chattanooga	17.5	21.5	3.0	16.0
Nashville	17.0	21.0	3.0	16.0
Bristol	18.0	22.0	3.0	14.0
Lit. Rock, Ark.	19.0	22.0	3.0	13.0

*Tax of 5 cents includes city tax of 1 cent. Louisiana kerosene prices include 1-cent state tax and 1-cent parish tax.

OHIO

Standard Oil Co. (Ohio)

	Gasoline			Kero.
	Tank wagon	Service station	Incl'ds tax of	tank wagon
All Ohio points	17.0	19.0	3.0	12.0

PENNSYLVANIA-DELAWARE AND PART NEW ENGLAND

The Atlantic Refining Co.

	Gasoline			Kero.
	Tank wagon	Service station	Incl'ds tax of	tank wagon
Pittsburgh, Pa.	15.0	*20.0	...	14.0
Philadelphia	15.0	*20.0	...	14.0
Scranton	15.0	*20.0	...	14.0
Allentown	15.0	*20.0	...	14.0
Altoona	15.0	*20.0	...	14.0
Erie	15.0	*20.0	...	14.0
Dover, Del.	18.0	20.0	3.0	14.0
Wilmington	18.0	20.0	3.0	14.0
Springf'd, Mass.	18.0	20.0	2.0	15.0
Worcester	18.0	20.0	2.0	15.0
Boston	18.0	20.0	2.0	15.0
Providence, R.I.	18.0	20.0	2.0	15.0
Hartford, Conn.	18.0	20.0	2.0	14.0
New Haven	18.0	20.0	2.0	15.0

*Includes tax of 3.0 cents. Pennsylvania tax is collected by the dealer and paid by him direct to the state.

TANK WAGON CHANGES

January 22—Standard Oil Co. of Louisiana reduced the gasoline tank wagon price 1 cent in Tennessee.

January 29—Standard Oil Co. of Indiana reduced the gasoline tank wagon price 1 cent and the station price 2 cents throughout its territory except in those places where abnormally low prices already existed. Standard Oil Co. of Ohio reduced the gasoline tank wagon and station prices 1 cent and will allow a 2-cent discount below the tank wagon price to dealers and commercial accounts. The new posted prices are 17 cents tank wagon and 19 cents station, including tax.

January 23—Magnolia Petroleum Co. reduced the gasoline tank wagon 1 cent and the station price 2 cents in Muskogee, Okla., to 16 cents and 18 cents.

January 26—Magnolia Petroleum Co. reduced the gasoline tank wagon and station prices 1 cent in Little Rock, Ark., to 19 cents and 22 cents.

CRUDE OIL CHANGES

January 24—Carter Oil Co. posted reductions in Oklahoma and Kansas crude setting 32 to 32.9 gravity oil at $1.08 per barrel with a 3-cent differential per degree higher in gravity to 44 and above at $1.44 and a 6-cent differential per degree below 32 to 25 to 25.9 gravity at 66 cents.

Magnolia Petroleum Co. met the Carter reduction in Oklahoma and Kansas and posted the same schedule in their North Central Texas purchases with the exception that in the entire territory all crude below 26 gravity was posted at 60 cents and a 5-cent differential established per degree up to 31 to 31.9 gravity at $1. The balance of the Carter schedule was adopted.

Magnolia Petroleum Co. revised Carson and Hutchinson West Texas crude prices, posting oil under 32 gravity at 72 cents, 32 to 32.9 gravity, 78 cents with a 3-cent differential per degree to 44 and above at $1.14.

Magnolia Petroleum Co. revised Wheeler County crude prices posting oil under 30 gravity at 70 cents with a 6-cent differential per degree to 32 to 32.9 gravity at 88 cents and a 3-cent differential on oil above 32.9 gravity making 44 gravity and above $1.24.

Magnolia Petroleum Co. revised Gray County crude prices posting 29 to 29.9 gravity oil at 90 cents with a 6-cent differential to 32 to 32.9 gravity at 93 cents and a 3-cent differential per degree above 32 gravity making 44 gravity and above $1.29.

January 25—Ohio Oil Co. reduced the following Rock Mountain crudes from 5 to 15 cents, making the new prices Elk Basin $1.36, Grass Creek light $1.36, Big Muddy $1.28, Lance Creek $1.38, Rock Creek $1.18 and Osage $1.38. Salt Creek was reduced setting 29 to 29.9 gravity oil at 90 cents with a 6-cent differential per degree to 32 to 32.9 at $1.08. Above 32.9 gravity a 3-cent differential is posted, making the top gravity 37 to 37.9 gravity at $1.23.

Ohio Oil Co. reduced Lima, Indiana, Illinois, Princeton, Plymouth and western Kentucky crudes 10 cents and Wooster crude 15 cents. Joseph Seep Purchasing Agency reduced Corning Ohio crude 10 cents.

January 26—Imperial Oil Co., Ltd., reduced Petrolia and Oil Springs Canadian crudes 10 cents.

Magnolia Petroleum Co. reduced north Louisiana and El Dorado, Ark., crude, posting oil below 28 gravity at 78 cents, 28 to 28.9 gravity at 84 cents with a 6-cent differential per degree to 32 to 32.9 gravity at $1.08 and a 3-cent differential per degree above that making 44 gravity oil $1.44.

Standard Oil Co. of Louisiana met Magnolia's cut in north Louisiana and El Dorado, Ark., and posted Bellevue, Ark., crude at $1.20.

Humble Oil & Refining Co. and The Texas Company reduced all grades of Gulf Coast Grade B light crude 10 cents.

January 29—Joseph Seep Purchasing Agency reduced Ragland, Ky., crude 35 cents to 60 cents.

CRUDE OIL PRICES

(Continued from Page 245)

Hamilton Dome (March 14, 1927)	.$1
Greybull-Torchlight (July 27, 1928)	1.46
Cat Creek (Montana) (July 27, 1928)	1.46
Sunburst (Montana) (May 18, 1928)	1.46
Artesia (July 27, 1928)	1.00
Hogback (New Mexico) (July 27, 1928)	1.45

Note—Salt Creek, Osage, Cat Creek, Greybull and Hogback posted by Midwest Refining Co., and the remainder by the Ohio Oil Co. Both companies post Grass Creek light and Elk Basin.

SOUTH CENTRAL AND SOUTHWESTERN TEXAS

Luling (January 11)*	$1.40
Mirando (January 7)†	.40
Rockdale-Minerva (April 15):	
Below 28 gravity	1.25
28-38.9 gravity	1.27
39-39.9 gravity	1.29
40 and above	1.31
Thrall‡	
Callihan (May 15)	1.75
Lytton Springs (Lockhart)	See gravity table
Somerset	See gravity table

*Posted by Magnolia Petroleum Co.
†Magnolia Petroleum Co., Humble Oil & Refining Co., Crown Central Pipe Line Co.
‡Thrall prices same as North Central Texas less 19½ cents per cwt. freight.

EASTERN STATES

(Effective January 4, 1929)

Penna Grade Oil in New York Transit Lines (New York)	$4.10
Bradford District Oil in National Transit Lines (Pennsylvania)	4.10
Penna Grade Oil in National Transit Lines (Pennsylvania)	4.00
Penna Crude Oil in Southwest Pennsylvania Lines (West Virginia)	4.00
Penna Grade Oil in Eureka Pipe Line Lines (Pennsylvania)	2.90
Penna Grade Oil in Buckeye Pipe Line Lines (Ohio)	2.85
Cabell Grade Oil in Eureka Pipe Line Lines (West Virginia) (July 13)	1.65
Corning 35-cent Grade Oil in Buckeye Pipe Line Co.'s Lines (January 25, 1929)	1.65
Corning 25-cent Grade Oil in Buckeye Pipe Line Co.'s Lines (January 25 1929)	1.75
Somerset Oil in Cumberland Pipe Line Lines (Kentucky) (Sept. 14, 1928)	1.75
Ragland Grade Oil in Cumberland Pipe Line Lines (Kentucky) (Jan. 29)	.60

MIDDLE WESTERN STATES

Ohio Oil Co.

(Effective January 25, 1929)

Lima	$1.50
Wooster	1.65
Illinois	1.45
Indiana	1.27
Princeton	1.45
Plymouth	1.18
Waterloo (November 17, 1926)	1.36
Western Kentucky (Sept. 17, 1928)	1.53
Midland, Mich. (January 15, 1929)*	1.79
Saginaw, Mich., Saginaw Sand (February 10)†	1.89
Saginaw, Mich., Beres Sand (February 10)†	1.79
Cumberland, Clay, Barren, Clinton and Monroe Counties, Kentucky, (March 16)‡	1.50
Oil in lines in Stoll Oil Refining Co. in Oil City, Ky. (Oct. 1, 1928)‖	1.76
Oil Springs (Canada)¶	1.97
Petrolia (Canada)¶	1.90

*Posted by Pure Oil Co.
†Posted by Sun Oil Co.
‡Posted by Paragon Development Co.
‖Posted by Stoll Oil Refining Co.
¶Posted by Imperial Oil Co., Ltd.

MEXICAN CRUDE

Panuco heavy (f.o.b. Mexican ports)	$1.15

Note—Due to the fact that the exportation of Tuxpan light crude has become a negligible factor, prices will no longer be published.

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Securities Reflect Crude Reduction

Standard of Indiana, Especially Strong Last Week, Closed With Supply Heavy. Several Issues Sold at New Lows for Year

By Special Correspondent

It was a bad week for the oils. The reduction in the price of Mid-Continent crude oil together with the month-end banking situation and the anticipation that call money rates would be increased placed the oils in a poor technical position.

Standard of Indiana which was especially strong last week closed in heavy supply with every prospect of making a new low for the year. Out of the group of the big board, Texas Pacific Coal & Oil was strong selling close to its 1929 high, an unusual sight in the current oil market. Marland, Barnsdall, Mid-Continent, Panhandle, Phillips Petroleum were among the oils of the Mid-Continent Field which were weak and sold at new lows for the year.

There was a noticeable softness in the oils of the Pacific Coast group with Richfield and Shell Union selling at new lows, and Standard of California in good supply.

The oil market was perceptibly thin all week.

Standard Oil Co. of Ohio

Standard Oil Co. of Ohio declared the regular quarterly dividend of $1.75 on preferred payable March 1 to stock of record February 8.

Shreveport-El Dorado Pipe Line

Shreveport-El Dorado Pipe Line Co., Inc., and Shreveport Producing & Refining Co. report for year ended December 31, 1928, consolidated profit of $716,467 after interest, rents, taxes, etc., but before depreciation reserve, comparing with $410,853 in 1927.

Skelly Oil

W. G. Skelly, president of Skelly Oil Co., says: "A special meeting of our board of directors will be held in Tulsa on February 5 for the purpose of electing to membership on the board Clarence Bitting, managing director of Fisher & Co., and Carle Conway, president of the Continental Can Co."

H. F. Wilcox Oil & Gas

New York Stock Exchange has received notice from H. F. Wilcox Oil & Gas Co. of proposed increase in authorized capital stock to 2,400,000 shares from 800,000 shares.

Mid-Continent Petroleum

Mid-Continent Petroleum Corp. has listed on the New York Stock Exchange 447,912 additional shares, which were offered for subscription at $31 a share to stockholders of record January 10. On completion of this financing outstanding stock will total 1,940,952 no-par shares, out of 3,000,000 authorized.

The offering has been underwritten and all stock not subscribed for, accompanied by full payment of subscription price, will be sold to the underwriters at a bankers' commission. Proceeds will be used in part to retire entire outstanding $8,726,000 first mortgage 15-year 6½ per cent sinking fund bonds and entire outstanding $6,228,000 par value of preferred stock, both having been called for redemption March 1, 1929.

Independent Oil & Gas

Statement of Independent Oil & Gas Co., including Manhattan Oil Co. for quarter ended December 31, 1928, shows net profit of $2,953,885 after depreciation, depletion, interest, federal taxes, etc., equivalent to $3.08 a share on 959,457 shares of no-par stock. This compares with net profit of $2,445,854 in preceding quarter including Manhattan Oil Co. from two months, equal to $2.55 a share and $469,496, excluding Manhattan Oil Co. in fourth quarter of 1927, or 94 cents a share on 500,000 shares of stock.

Net profit for year ended December 31, 1928 (including Manhattan Oil Co. for five months), was $5,092,858 after above charges, equal to $5.30 a share on 959,457 no-par shares, comparing with $2,313,431 excluding Manhattan Oil Co., or $4.62 a share on 500,000 shares in preceding year.

In figuring 1928 per share earnings no consideration is given to new stock issued at close of the year as the funds were not to be available until Jaunary 1, 1929.

Beacon Oil

Beacon Oil Co. has called for retirement on February 15 at 110 a share its entire issue of approximately $2,200,000 of 7½ per cent cumulative preferred stock. Control of this company recently passed to Standard Oil Co. of New Jersey which now has considerably more than 50 per cent of approximately 1,425,000 shares of common.

This acquisition was made by purchasing from Beacon Oil Co. 350,000 shares of its treasury common stock at $19.10 a share, some large blocks from individuals and an offer to remaining common stockholders to exchange 2¼ shares for 1 share of Standard Oil of New Jersey common.

OIL BONDS ON THE NEW YORK STOCK EXCHANGE

Quotations Compiled by Francis, Bro. & Co., Members New York Stock Exchange Kennedy Bldg., Tulsa, Okla.

Amount outstanding	Company—	Date	Pct.	Int.	For week ended Jan. 18 Sales	High	Low	Close
.....	Atlantic Refining Co.	July 1937	5	J&J	35,000	102½	102	102½
18,864,500	Barnsdall Oil with war.	Dec. 1940	6	J&D	157,000	138⅛	134	134
6,000,000	Barnsdall Oil without war..	Dec. 1940	6	J&D	20,000	99⅞	99¾	99¾
11,400,000	California Pet. conv. deb. ..	Nov. 1938	5½	M&N	27,000	102¼	102¼	102¼
7,400,000	California Pet. conv. deb. ..	Feb. 1939	5	F&A	5,000	100½	100½	100½
.....	General Petroleum	Aug. 1940	5	F&A	9,000	102	101	101½
25,000,000	Humble O. & R. deb.	July 1932	5½	J&J	58,000	101⅝	101¼	101½
24,239,000	Humble O. & R. deb.	Apr. 1937	5	A&O	27,000	100¼	99¾	100
10,103,000	Mid-Cont. Pet. Corp.	Mar. 1940	6½	M&S	7,000	105	105	105
3,745,000	Pan-American Pet. & T. ...	Aug. 1930	7	F&A	13,000	104⅝	104½	104½
10,161,900	Pan-American Pet. & T. ...	Nov. 1934	6	M&N	25,000	105	104½	104
40,000,000	Phillips Pet.	June 1939	5½	J&D	17,000	93⅝	93	93⅛
.....	Pierce Oil deb.	June 1931	8	J&D	No sales.			
.....	P. & R. Corp. without war..	June 1931	8	J&D	No sales.			
20,000,000	Pure Oil	Aug. 1937	5½	F&A	19,000	100	99½	99¾
30,000,000	Shell Pipe Line Co.	Nov. 1952	5	M&N	20,000	96½	95¾	95¾
50,000,000	Shell Union Oil Co.	May 1947	5	M&N	144,000	98⅝	96¾	98
3,431,500	Simms Pet. Co.	Nov. 1929	6	M&N	5,000	100	100	100
44,816,500	Sinclair Co. Oil Co. A	Mar. 1927	7	M&S	181,000	103	101¾	102½
23,086,500	Sinclair Co. Oil Co. B	Mar. 1938	6½	J&D	53,000	101½	101	101½
20,000,000	Sinclair Co. Oil Co. D	Sept. 1930	6	M&S	61,000	100	98⅝	99½
.....	Sinclair Cr. Oil Pur. Co. A..	Jan. 1938	5½	J&J	73,000	97½	97	97⅛
.....	Sinclair Pipe Line Co.	Oct. 1942	5	A&O	59,000	94¼	93½	93½
15,000,000	Skelly Oil Co.	Mar. 1939	5½	M&S	13,000	93½	93	93⅜
.....	Standard Oil of N. J.	Dec. 1946	5	F&A	81,000	103	102½	102⅝
.....	Standard Oil of N. Y.	Dec. 1951	4½	J&D	92,000	100¼	96¼	96¾
.....	Superior Oil Co.	Feb. 1929	7	F&A	No sales.			
.....	Union Oil of Calif.	Jan. 1931	5	J&J				
8,934,500	Union Oil of Cal. 20 yr. A....	May 1942	6	F&A	9,000	108⅞	108⅞	108⅞
9,419,000	Union Oil of Cal. series C ..	Feb. 1935	5	A&O	2,000	99½	99½	99½
4,870,000	White Eagle Oil & Ref.	Mar. 1937	5½	M&S	26,000	104	103	103

INDEPENDENT OILS ON THE NEW YORK CURB

Quotation Compiled by Francis, Bro. & Co., Kennedy Building, Tulsa, Okla. Members New York Curb Market

1926 High	1926 Low	1927 High	1927 Low	1928 High	1928 Low	Par Value	Stocks	For week ended January 25 Sales	Open	High	Low	Last	Change
$6.75	.45	2 1/16	.55	1½	.53	$5	Amer. Con. Oilfields	15,800	67	70	66	66	— 2
..	..	7½	2¾	9½	3⅛	N.P.	Amer. Maracaibo	3,400	7⅛	7½	6½	6½	— ⅝
..	..	2¾	1	4½	2¼	$10	Argo Oil	400	3⅛	3⅛	3	3	....
..	..	..	..	..	..	..	Arkansas Natural Gas	1,400	4½	4½	4½	4½	....
85¼	60	40	20½	55	32¾	N.P.	British American	100	32	32¼	32	32¼	+ ⅜
28⅜	9¼	28¼	15½	4½	3⅞	25c	Carib. Syndicate (new)	7,200	3¾	4⅛	3¾	3⅞	— ⅛
..	..	58¾	40¼	90⅞	54	$20	Cities Service	69,900	89⅞	91¼	89¼	90⅜	+ ⅝
..	..	95⅜	87	103½	94½	100	Cities Service, pfd.	600	98	98⅛	97¾	98	— ⅛
..	..	8⅞	7⅜	9⅝	8⅞	10	Cities Service, pfd. B	100	9	9	9	9	....
3½	1¾	3⅞	1⅛	3¼	76	1	Colombia Syndicate	900	1½	2	1½	1½	+ ⅛
..	..	9¾	6⅜	8⅞	6¼	10	Consolidated Royal	2,200	8	8⅛	7⅞	8	+ ⅛
16	10	14⅞	9½	17½	9½	N.P.	Creole Syndicate	4,000	10½	10⅝	9¾	9⅞	— ⅝
..	..	3	.50	3¼	.76	N.P.	Crown Central	1,800	1⅜	1½	1⅜	1⅜	....
7⅞	6¾	12	4	33½	3¼	N.P.	Darby Petroleum	700	25⅜	25¾	25½	25½	— ⅛
..	..	2½	74	2¼	1	N.P.	Derby Oil & Refining	2,400	4½	4½	4	4	— ⅛
..	..	16¾	4	21⅛	7½	N.P.	Derby Oil & Refining, pfd.	1,100	27½	27½	27½	27½	....
..	..	2	.40	.53	.15	N.P.	Gilliland etfs.	No sales.					
98	92	118	86¼	165	101⅛	$25	Gulf Oil Corp.	12,800	159⅛	161⅞	152⅛	156	— 4½
$3.00	.83	2½	.80	3⅜	1	5	Intercontinental Pet.	74,100	2	2⅜	2	2⅜	+ ⅜
..	..	2¼	1⅛	3	1¼	N.P.	Kirby Petroleum	1,900	2⅜	2¾	2⅛	2⅜	— ⅛
12¼	5¾	10⅞	5⅛	9⅜	5⅛	25	Leonard Oil & Dev.	1,800	5⅛	5⅜	5¼	5⅜	+ ⅛
27	20	27½	20	43⅞	20	N.P.	Lion Oil & Refining	5,800	32¾	32⅞	32	32⅛	— ⅜
46	30	59⅜	37	69⅛	48⅛	$25	Lone Star Gas	100	70	71⅞	71	71	+ 1
2⅞	1	2⅞	.80	1⅞	.50	1	Magdalena Syndicate	168,900	66c	1¼	66c	91c	+ 24c
34	12½	52	12	48½	32	N.P.	Margay Oil	100	36	36	36	36	....
8	5½	12⅛	5	8	2¾	N.P.	Mexico-Ohio Oil	100	3¾	3¾	3¾	3¾	— ¼
1¾	1⅛	1½	1	1¾	.76	$1	Mountain & Gulf	6,700	1½	1½	1⅜	1½	....
26	23	29¼	22¾	28⅞	19½	10	Mountain Producers	50,000	19¾	20¼	19⅝	19¾	....
6⅝	5	5⅞	4⅝	5⅝	4¼	5	New Bradford	2,000	4¾	4⅞	4⅝	4⅝	— ⅛
..	..	16	9¼	11⅞	7⅛	1	New Mex. & Ariz.	600	8⅝	8⅝	8¼	8⅛	+ ⅛
..	..	12¾	9½	14¼	8½	N.P.	North Central Texas	4,000	10⅜	11½	10⅜	11½	+ 1⅜
10⅛	5⅞	9⅜	3¼	6	2⅛	N.P.	Pandem	1,000	2⅛	2¼	2¼	2¼	+ ⅛
12¼	11¾	12⅛	7	15⅝	8½	N.P.	Pantepec Oil	4,900	9⅞	9⅞	9	9⅛	— ⅛
22¾	12	13½	5⅛	7⅜	4⅞	N.P.	Pennok Oil	1,000	6¾	6¾	6¼	6½	....
17	8½	24⅜	7	18	4⅞	25	Red Bank Oil	3,000	13	13	12½	12½	+ ¼
30¼	12	15½	3½	12⅞	4⅛	N.P.	Reiter-Foster	2,800	6⅛	6½	6	6¼	— ⅛
7	4½	7	4½	12	4⅛	N.P.	Ryan Consolidated	18,000	9	11	8	10¼	+ 1¼
10	7⅛	8	5¼	7¼	5½	$10	Salt Creek Cons.	200	5¾	5⅞	5⅞	5⅞	+ ⅛
35	24⅛	35½	27¼	35	23⅛	10	Salt Creek Prod.	4,800	24⅞	24⅝	23¼	23¼	— 1⅝
6⅞	1¼	7	1¼	3½	1	5	Savoy Oil	No sales.					
27	7⅝	26½	17	22⅞	13	10	Tidal Osage	1,200	15	15	14½	14½	— ½
25¾	7⅝	23¾	15	21¼	13⅛	10	Tidal Osage, nonvoting	1,000	13⅛	14⅞	12⅞	12⅞	— ⅝
92	63½	92	63½	93¾	75	100	Transcontinental, pfd.	No sales.					
8	4½	7⅜	4¼	9⅛	4¾	5	Venezuelan Petrol	4,400	5⅝	5¾	5½	5½	— ⅛
8⅛	5½	8	4¾	8¼	4⅞	$1	Woodley Petroleum	1,200	5⅞	6	5¾	5⅞	....
6½	6	6	1¾	8⅜	2⅛	25	Y Oil & Gas (new)	3,100	4⅛	5	4	5	+ ⅛

TWENTY REPRESENTATIVE STOCKS

The Oil and Gas Journal weekly average price of 20 representative petroleum stocks listed on the New York Stock Exchange and New York Curb, based on closing quotations for Saturday, was as follows:

January 26 ..... 57.4

Petroleum Corporation of America

Elisha Walker of Blair & Co. will be chairman of the new Petroleum Corporation of America of which John H. Markham, Jr. is president. The directors, besides Mr. Walker and Mr. Markham, will include Jules S. Bache, Leo V. Belden, Harry Bronner, W. Frank Carter, T. L. Chadbourne, William G. Costin, Arthur Cutten, Ruloff Cutten, A. G. Diebold, Garrettson Dulin, Henry W. Farnum, F. F. Florence, P. A. S. Franklin, Halsted G. Freeman, Philip G. Gossler, Frederick T. Haskell, R. E. Harding, Charles Hayden, Louis W. Hill, E. F. Hutton, C. P. Kalman, Robert P. Lamont, Arthur W. Loasby, Hunter S. Marston, Walter S. McLucas, Charles A. Munroe, Jansen Noyes, Thomas W. Phillips, Jr., Edward A. Pierce, George F. Rand, Earle H. Reynolds, H. H. Rogers of Tulsa, Theodore G. Smith, Casimir I. Stralem, Edward R. Tinker, George W. Treat, Nion R. Tucker, James C. Wilson, John Lonsdale, P. H. O'Neil, George Armsby, John C. Grier, Jr., Gurney E. Newlin and Arnold G. Stifel.

Gilmore Consolidated

Consolidation of Gilmore Oil Co., Bolsa Chica Oil Corp., and E. J. Miley Oil Co., into Gilmore Consolidated Oil Corp., has been effected. Oscar Howard was elected chairman of the board, and W. H. Meblett president. Members of the

TRANSACTIONS IN OIL SHARES ON NEW YORK STOCK EXCHANGE

Quotations Compiled by Francis. Bro. & Co., Members of New York Stock Exchange, Kennedy Building, Tulsa, Okla.

1926 High	1926 Low	1927 High	1927 Low	1928 High	1928 Low		Listed capital	Par value	Stocks—	Div. rate	Last paid	For week ended January 18 Sales	Open	High	Low	Last	Change
32⅝	24¼	37⅝	27⅝	43⅞	27⅛	(sh)	922,075	N.P.	Amerada Corp.	50cQ	Oct. 31, 28	....	37⅝	....	....	....	....
74	39⅞	82½	35⅛	85	51¼	(sh)	209,180	N.P.	American Republics Corp.	.....	.....	11,000	58¼	59⅞	57⅛	58⅞	+ ⅝
60	44¾	50¼	35	53⅜	37½		$57,260,300	$25	Associated Oil	50cQ	Dec. 31, 28	70	46	46	45⅛	45¼	— ⅞
128⅝	97	131⅜	104	66⅜	50		50,000,000	25	Atlantic Refining	25cQ	Dec. 15, 28	92,000	62⅛	63⅜	59	59	— 2¼
33½	23½	35½	20¾	53	20		35,194,000	25	Barnsdall Corp.	50cQ	Feb. 5, 29	84,000	43⅝	44¾	42¼	42⅝	— ¾
94¼	50	96¾	65	94⅞	68		20,785,400	100	General Asphalt	.....	.....	6,800	77	78⅜	74⅜	74¾	— 2¼
72	50¼	175⅜	60⅛	167	79		25,000,000	100	Houston Oil	.....	.....	7,600	94½	94½	87½	90	— 4½
34	19⅝	32¾	17⅝	38⅜	21¾	(sh)	959,457	N.P.	Independent Oil & Gas	50cQ	Jan. 31, 29	67,300	31⅝	34½	30¼	31	— ¾
12¾	7½	12⅛	7⅝	39⅝	9		8,203,080	$10	Indian Refining	.....	May 31, 24	66,300	33⅝	37	31½	35½	+ 2⅛
25⅞	16½	37¾	20½	39⅛	27⅜	(sh)	3,992,122	N.P.	Lago Oil & Transport	.....	May 1, 27	3,200	30¾	31	28	28	— 2¾
19⅞	12	18⅛	10	19¾	9⅜	(sh)	1,237,078	N.P.	Louisiana Oil Refining	.....	.....	24,000	16⅜	16⅛	14¼	14⅜	— 1½
28	16½	22¾	12	25½	12½	(sh)	330,000	N.P.	Maracaibo Oil	.....	.....	900	....	16	15½	15½	— 1
63⅜	49¼	58½	31	49¾	33	(sh)	2,316,692	N.P.	Marland Oil Co.	.....	Mar. 31, 27	48,000	43	43	40⅛	40½	— 2½
13⅜	6	9¼	3	73	4⅝	(sh)	945,939	N.P.	Mexican Seaboard	.....	Dec. 15, 20	113,600	58	62	57	58⅜	— ¼
37	20½	39⅜	25½	44½	25⅛	(sh)	1,357,461	N.P.	Mid-Continent Petroleum	50cQ	Feb. 15, 29	35,300	34¾	34⅞	32⅝	33	— 1⅝
104¼	90	105	97	120½	103¼		$6,718,000	$100	Mid-Continent Petroleum pfd.	$1.75Q	Sept. 1, 28	300	120½	120½	120½	120½	+ ¼
2½	½	3¾	1⅝	7⅜	2⅜		24,298,850	10	Middle States	.....	July 1, 23	11,400	4½	4⅝	4¼	4¼	— ¼
70½	56⅛	65⅞	40⅛	54⅞	38¼		$48,807,400	$50	Pan American P. & T.	.....	Oct. 20, 27	3,300	48⅜	47	44½	44⅞	— 1⅛
78⅜	56⅞	66⅜	40¼	58⅞	37¾		121,097,900	50	Pan American P. & T. B	.....	Nov. 15, 24	29,000	48⅝	48¾	45⅜	45⅞	— 2⅝
46	30	37⅞	16¾	28⅜	15½	(sh)	400,000	N.P.	Pan American Western B	.....	Jan. 30, 27	700	17½	17½	17½	17½	....
22	4½	18⅞	8	21¾	11½	(sh)	198,770	N.P.	Panhandle P. & R.	.....	.....	2,600	13	13	12	12	— 1
99⅜	51	83	54	108	70		$2,935,200	$100	Panhandle P. & R. Pfd.	.....	July 2, 23	400	75	75	70	70	— 6
57⅞	40	60¼	36¼	53⅞	35¼	(sh)	2,406,796	N.P.	Phillips Petroleum	37½cQ	Jan. 2, 29	49,800	41¾	42⅜	38	39¼	— 2¾
....	....	1⅛	½	5¼	½		$29,622,925	$25	Pierce Oil Corp.	.....	.....	7,900	2⅝	2⅞	2½	2⅝	....
7	2¼	5½	2½	7	3½	(sh)	2,500,000	N.P.	Pierce Petroleum	.....	.....	31,000	5½	5⅝	5	5¼	— ¼
60¼	48	55½	45⅝	68	46		60,000,000	25	Prairie Oil & Gas	.....	Aug. 31, 27	43,600	58¼	60½	58¼	58¼	+ 2¾
									Prairie Pipe	.....	.....	69,100	..	57	57	55½	+ ½
20¾	11	33⅞	16¾	29⅞	16		$37,450,850	$50	Producers & Refiners	.....	Sept. 15, 23	2,900	22¾	22¾	21½	21½	— 1¼
41⅜	30¾	50	36⅞	49⅝	41		2,845,350	50	Producers & Refiners pfd.	.....	May 1, 25	70	....	42	42	42	....
31	25¼	33½	25	31⅝	19		75,959,350	25	Pure Oil Co.	25cQ	Dec. 1, 28	29,800	26	26⅛	24⅛	24¼	— 1¾
27½	22	28⅝	25⅜	56	23		47,025,000	$25	Richfield Oil	.....	Nov. 15, 28	19,100	45⅜	46	44¼	44⅝	— ⅝
57⅜	47⅝	54½	44¼	64	44⅝	(sh)	611,303	13.40	Royal Dutch, N. Y. shares	50cQ	Jan. 10, 29	1,100	52⅞	53¼	51⅜	51⅜	— 1½
68⅝	40½	47⅞	41⅜	57½	40⅝	(sh)	£30,000,000	£1	Shell Transport & T.	$1.455	July 23, 28	700	....	52	45½	45½	— 4¼
31	24	31⅜	24⅝	39¼	23¼	(sh)	20,000,000	N.P.	Shell Union Oil	35cQ	Dec. 51, 28	69,100	28¼	28⅞	27⅝	27¾	— ⅝
28⅝	15⅛	26¾	14¼	27¼	18⅛		$8,357,000	$10	Simms Petroleum	10cQ	Dec. 15, 28	21,100	22⅜	23⅜	21⅝	21¾	— ⅜
24⅞	16¾	22⅜	15	46¾	17⅜	(sh)	4,501,915	N.P.	Sinclair Consolidated	.....	.....	236,700	41⅛	42⅜	39½	40	— 1½
90¼	90	104½	97	110	102½		$16,604,600	$100	Sinclair Consolidated pfd.	$2Q	Nov. 15, 28	600	109⅞	110	109⅜	110	+ ⅜
37⅛	26⅝	37⅜	24⅛	42⅝	25		27,396,590	25	Skelly Oil Co.	50cQ	Dec. 15, 28	61,900	35⅛	40⅞	36¼	37¾	— ¾
63⅝	51½	60¾	50⅝	80	53	(sh)	12,594,098	N.P.	Standard Oil of California	65½cQ	Dec. 15, 28	31,000	70½	70⅝	67½	67⅞	— 2⅝
46⅝	37½	41⅜	35⅛	59⅜	37¾		$611,120,700	$25	Standard Oil of New Jersey	25cQ*	Dec. 15, 28	98,200	51⅝	52¾	50⅝	51⅝	— ¾
47½	30⅜	34⅛	29¾	44¼	28¾		427,973,275	25	Standard Oil of New York	40cQ	Dec. 15, 28	178,300	45⅛	45½	42⅛	42⅝	— 2¾
41⅝	30⅛	34⅞	30	77	31½	(sh)	1,206,073	N.P.	Sun Oil	25cQ	Dec. 15, 28	2,900	64⅛	64	60	62	— 2⅛
5¾	1	6½	3⅛	14¼	2½	(sh)	1,267,000	N.P.	Superior Oil Corp.	.....	Dec. 20, 20	34,900	9⅝	9⅞	8⅜	8⅝	— 1⅛
55	48	58	45	74⅜	50		$211,076,650	$25	The Texas Corporation	75cQ	Jan. 1, 29	59,000	64⅛	64¼	61½	61½	....
19½	12	18⅞	12	26⅝	12⅛		8,380,340	10	Texas Pacific Coal & Oil	.....	Jan. 3, 28	19,500	17⅜	17⅜	16¼	16⅝	— ⅞
39⅛	27	29⅛	19	41½	19⅝	(sh)	2,168,410	N.P.	Tide Water Oil Co.	20cQ	Dec. 15, 28	2,600	36½	36⅜	33½	33½	— 2¾
108	87¼	90⅛	85	100⅛	86		$20,705,200	$100	Tide Water Oil Co. 5% pfd.	$1.25Q	Nov. 15, 28	2,400	....	96¼	94½	94½	— 1¾
27	20⅞	19⅛	15⅜	25	14¾	(sh)	4,796,158	N.P.	Tide Water Associated	.....	Aug. 1, 27	36,600	20⅜	20½	18⅝	18⅞	— 1⅝
5½	3	10⅜	3¾	14¾	7¼	(sh)	3,742,029	N.P.	Transcontinental Oil	.....	.....	14,600	11⅛	11⅜	10½	10½	— ½
58⅜	37¼	56½	39⅝	58	42¾		$94,798,100	$25	Union Oil of California	50cQ	Nov. 10, 28	9,400	52	51⅜	49½	50⅞	— ⅞
120⅝	84¼	127½	94	128⅛	110		31,061,200	100	Union Tank Car Co.	$1.25Q	Dec. 1, 28	4,000	133	131¾	127	127⅛	— 6⅜
30½	23½	34½	24½	44⅞	26	(sh)	356,000	N.P.	Warner Quinlan	50cQ	Jan. 2, 29	16,900	39¾	39⅞	37	38	— 1¼
29⅞	25⅛	27½	20	38	20⅛	(sh)	490,000	N.P.	White Eagle Oil & Refining	50cQ	Jan. 20, 29	8,600	34⅜	34½	32	32	— 2⅜
									Wilcox Oil & Gas	.....	.....	8,600	20⅞	23½	21¼	22½	+ 1

*Also extras. †Ex-dividend.

STANDARD OIL STOCKS ON NEW YORK CURB

21	16	21⅝	17⅞	22⅜	14⅞		£4,126,460	£1	Anglo-American Oil	.....	June 6, 28	1,800	16¼	16⅝	16⅜	16⅜	+ ⅛
....	....	3¾	¾	5	1¼	(sh)	500,000	N.P.	Atlantic Lobos	.....	.....	1,600	2¼	2⅜	2	2⅜	+ ⅛
76	65	69	50	56½	44½		1,000,000	25	Borne Scrymser	$1S.A.	Oct. 15, 28	3,500	43	43	43	43	....
59½	42	60	45	76	53		10,000,000	50	Buckeye Pipe Line	$1Q	Dec. 15, 28	1,100	72	72	68	68	— 5½
83½	65	126	76½	161	117½		3,000,000	25	Chesebrough Mfg.	$1Q	Dec. 28, 28	200	144	144	144	144	+ ½
25⅞	17½	22⅝	16¼	23	16		36,057,840	10	Continental Oil	.....	Dec. 15, 27	23,800	18⅞	19	18	18⅜	— ½
107	102	137	89	114	67		1,500,000	50	Cumberland Pipe Line	$1A	Dec. 15, 28	400	65	65	62	62	— 3
69⅜	43	68½	47	88	64⅛		5,000,000	100	Eureka Pipe Line	$1Q	Nov. 1, 28	400	69	70½	68	70½	+ 5
15½	9⅞	13½	3½	13	4¼		16,000,000	100	Galena Signal Oil	.....	June 30, 25	1,800	6⅜	6⅜	6¼	6⅜	+ ⅛
66½	52	68½	54	114⅜	59¼		73,117,577	25	Humble Oil & Refining	30cQ*	Jan. 1, 29	28,500	99⅜	101⅞	96	96¼	— 6⅞
144½	125½	182	123¾	290½	176½		20,000,000	100	Illinois Pipe Line	10%S.A.	Dec. 15, 28	850	304½	311½	301	311½	+ 9½
....	....	64¾	37¾	104	56¾	(sh)	6,458,267	N.P.	Imperial of Canada	25cQ	Dec. 1, 28	14,800	102	102⅞	98	98	— 4
73½	58	94½	61	91⅞	74⅜		$5,000,000	$50	Indiana Pipe Line	$1Q	Feb. 15, 29	300	90¼	90¾	89	89	— 1
35½	28⅜	39	28¼	55	35	(sh)	7,123,444	N.P.	International Petroleum	25c	Nov. 30, 28	84,500	61	65½	61¼	62⅜	— 1½
39⅜	12½	24	13½	32⅜	19⅜		$6,363,350	12.50	National Transit Co.	25c	Dec. 15, 28	3,600	25⅞	25⅞	24¾	24¾	— 1¼
81½	27¼	44½	31¼	75	38½		5,000,000	100	New York Transit	.....	July 15, 26	300	77½	77½	76	77	— 4
89½	64	100	70	69	56½		2,000,000	50	Northern Pipe Line	$3S.A.	Jan. 2, 29	400	61½	61½	61½	61½	— ½
67⅞	55⅜	67⅞	52	84	58½		60,000,000	25	Ohio Oil Co.	50cQ*	Dec. 15, 28	3,400	71	71¼	67¼	67¼	— 5⅜
26⅜	15	39	12	84	28		10,000,000	25	Penn Mex. Fuel	$1.25	Dec. 15, 28	2,600	37	37⅜	35⅛	36	— 1
250	84½	201½	175½	220	167		4,000,000	100	Solar Refining	$5S.A.	Dec. 20, 28	No sales.					
74½	61½	27¼	15½	19	15		1,000,000	10	Southern Pipe Line	$2	Dec. 1, 27	1,500	15⅞	17	15¾	17	+ 3
50	34½	41½	35	71⅞	36¾		2,000,000	25	South Penn Oil	50cQ	Dec. 31, 28	2,500	67¾	67⅞	66½	66½	— 1¼
58	47½	83	55½	102	70		3,500,000	100	Southwest Pa. Pipe Lines	$1Q	Oct. 1, 28	No sales.					
70½	60½	81½	64⅝	95⅞	70⅞		228,415,463	25	Standard Oil of Indiana	62½cQ	Dec. 15, 28	167,600	95¼	94½	90	90	— 6⅜
36½	16½	20⅞	14⅝	27⅜	15		8,000,000	25	Standard Oil of Kansas	.....	June 16, 24	3,100	20⅜	21½	20⅞	20¼	— ½
134⅝	108	130	111½	179¾	122¼		17,012,559	10	Standard Oil of Kentucky	$1Q	Dec. 31, 28	8,200	43⅜	43⅞	42½	42¾	— ¾
51¾	42	49½	40	54⅞	39⅞		4,559,850	25	Standard Oil of Nebraska	63cQ	Dec. 20, 28	300	47	47½	47	47	....
302	288	87½	72	134	71		14,000,000	25	Standard Oil of Ohio	62½cQ	Jan. 2, 29	850	118¾	118¾	116¾	117¾	— 1
21	15	21	14½	23½	16		861,000	25	Swan Finch Co.	.....	Nov. 1, 19	No sales.					
109⅜	90¼	....	....	111	72		125,619,000	25	Vacuum Oil	75cQ	Dec. 20, 28	21,500	127	130¾	122⅜	124	— 1

*Also extras.

board in addition to the above follow: Clarence Beesemeyer, H. H. Cotton, C. Delorme, J. B. Elliott, R. E. Fisher, vice president, Pacific Gas & Electric Co., William Ford, Earl Gilmore, James Irvine, E. J. Miley, Philip C. Calterbach, William H. Thomas and Joseph J. Tynan.

Southern Pipe Line

At the annual meeting of the stockholders of Southern Pipe Line Co. the following directors were elected: Forrest M. Towl, J. W. Vandergrift, J. M. Tussey, V. S. Swisher, and L. S. Devol. Mr. Devol was elected in place of E. W. Whipple. At the reorganization meeting of the directors the following officers were elected and appointed: Forrest M. Towl, president; J. W. Vandergrift, vice president and general manager; Allan T. Towl, vice president and assistant general manager; H. C. Dorworth, vice president; J. M. Tussey, treasurer; V. S. Swisher, secretary; J. M. Tussey, assistant secretary; V. S. Swisher, assistant treasurer; E. A. Whipple, assistant secretary and assistant treasurer; E. W. Ziegler, assistant secretary and assistant treasurer; G. W. Williams, assistant secretary; H. C. Dorworth, solicitor; and W. R. Daugherty, general auditor.

Southwest Pennsylvania Lines

At the annual meeting of the stockholders of Southwest Pennsylvania Pipe Lines, the following directors were elected: Forrest M. Towl, Theodore C. Towl, John Darr, R. L. Cronise, D. L. Jolly. At the reorganization meeting of the directors the following officers were elected and appointed: Forrest M. Towl, presi-

(Continued on Page 255)

SPOT BUSINESS WAS LIGHT IN CHICAGO

(Continued from Page 238)

fuels. Others are in the same position. Even if they wanted to run more of these oils they could not do so without some delay and the bulk of the buying will be done within 40 days.

Fuel Oils

The heavier fuel oils are just in fair demand in the spot market a condition perhaps due to the many contracts in force on which many of our largest industrial users are securing all their supplies. This takes a large number of large users out of the market except for bargains. They will buy if the price is so low they feel they are sure to be below the market at the time they naturally would use the oil. Such are no help to the spot market except that they occasionally remove some distress stuff but even then the price is talked around and that does not help regular sales. The spot buyers want at present real zero oils that will come through and still be in shape to be easily removed with steam. One recent complainer regarding a tank of fuel oil told the seller he had "fried the oil for two days and it would not flow." It is bad weather for fuel oil and we may have a lot more of it. The demand for these zero oils is active and with a light supply in sight for the early future, the prices are strong and may advance a little. That is for the oils low in sulphur. There is only a fair demand for the high in sulphur oils and on these prices are just about steady.

Comparatively little new business is being placed on the West Texas fuels. So many nearby refiners are using the West Texas crudes they supply the nearby demand. One large contract on a very heavy oil somewhere around 12 to 16 gravity was closed very recently, the contract to run until March 1, 1930, at a price of 47½ cents. The buyer is a large local user. The contract was taken by one of the local refiners and will be an oil low in sulphur. The chief activity now is caused by the addition to the regular industrial demand of the consumption for heating by the larger users. This demand will be greatly reduced by the end of March at latest. Some oil may be needed after that time for heating but the quantity will be much less. The dealers feel that February will be the last really important month for heating use and after that the consumption will depend on the activity of the larger industrial users. At present the outlook is very good but with very ample supplies available and many of the largest industries supplied under contract until the end of May there will be no very great increase in the spot buying nor in market prices. The chief users of fuel oil all state the outlook for the next six months is bright for them and they expect to have a full production which will mean a steady and large industrial consumption of fuel oil. After the next 60 days there will be little insistence on zero test oils and the premiums now paid for them will disappear but right now they are the only oils wanted in quantities by the industries.

Lubs Strong

In the matter of lubricating oils the market continues to be strong on all lubricating products except the neutral oils. When asked as to these, refiners shake their heads and remark they seem hopeless. One refiner commented on the fact that no concerted effort was being made to find a market. He believed it could be done. Motor oils are very quiet as to demand from distributors.

Tank Wagon Talk

The reduction in crude prices and the declines in the eastern territories have set the tongues wagging regarding a decline in tank wagon prices in the Standard of Indiana territory. Of course the situation has been greatly changed since last week and while there may be such a change at any time, it has not been announced. It would seem almost unavoidable in the near future and as such changes do come it will be with little or no previous notice. When the price change is made it is expected all of the cut prices will be eliminated, that is all cut prices will be restored to normal and the decline be made from the normal price but this, too, is a matter for future decision. If this is the plan followed there will be some considerable districts where the prices will not be reduced to the public and some where they will be actually advanced.

MAKING HISTORY IN PIPE LINE BUILDING

(Continued from Page 98)

pany's 10-inch main line coming down from the Panhandle and tying into the main line going south at Comyn station. A 6-inch line was built to Hawley station to handle this crude.

Early in August, 1928, the same company started construction of a 63-mile 8-inch lateral from San Angelo station to the Roberts Pool in Howard County. This line connects with the company's double 8-inch running from Comyn station to Kemper station. It was completed the latter part of December.

Handling crude on such a large scale necessitated the continual enlargement of Kemper station in Reagan County. The station at present has a pumping capacity of 100,000 bbls. daily and the six pumps are powered by three 400-horsepower Deisel engines and four 165-horsepower engines.

The Gulf's Progress

Gulf Pipe Line Co. was the second transporting company to build a main line into West Texas. In February, 1927, the company completed a 50-mile 8-inch line from the Church and Fields Pool to its tank farm and loading rack at Midland. This line was looped half of its distance with 8-inch pipe in 1928. During June of 1927 the Gulf company completed a 210-mile 10-inch welded carrier from Midland to Ranger, where the line intersected its main line system that extended east via Fort Worth to its trunk line running to Port Arthur from the Mid-Continent. Late in November of 1927 it started running oil through an 8-inch carrier running north from the Yates Pool to the company's rack at Hurdle. This line is approximately 25 miles long and in February, 1928, a 22-mile 8-inch extension was completed from Hurdle to Church and Fields, which gave the Gulf organization a complete tap from Yates north to Church and Fields. The company made a survey for a line from Church and Fields to Hendricks months ago, but the project has been abandoned for the present.

Magnolia's Entrance

The third transporting company to enter West Texas was the Magnolia Pipe Line Co., when that company completed a 220-mile 8-inch welded system from Midland storage center to De Leon station in Comanche County. This line was completed in the early part of December, 1927, with a daily capacity of 25,000 bbls. and ties into the Magnolia company's main line system running south at De Leon station.

Prior to the construction of this line, the Magnolia company completed a 45-mile 8-inch welded carrier from Church and Fields to Midland tank farm. To insure steady running of the system going to De Leon the company has recently started moving crude on long-term contracts on a common carrier basis. Late in the summer of 1927 it looped this line with approximately 65 miles of 8-inch pipe.

The Magnolia company has a 4-inch line running from its Iatan tank farm in Mitchell County to the Westbrook Pool in the northwest part of the county. The same company also has a 4-inch line that runs south from Iatan to the Chalk Pool in southern Howard County and which is being extended a short distance west to gather crude in the Roberts Pool.

Shell's Long Line

The next trunk outlet to be completed was the Shell Pipe Line Corp.'s 485-mile system running from McCamey to Healton, Okla. This was originally designed for a 35,000-bbl. daily capacity 10-inch welded carrier, but when it was placed in operation in May, 1928, it was found to be capable of handling at least 45,000 bbls. daily.

Late in December of 1927 the Shell corporation built a 6-inch line from the Hendricks Pool to Monahans loading rack and tank farm and later this line was paralleled with another 6-inch. The double 6-inch system was extended on down to McCamey, a distance of 75 miles, early in 1928. The gathering system was extended into the Yates Field with a 25-mile 6-inch line which was completed early in 1928. In the fall of 1928 Shell corporation put an 8-inch lateral from its main line to the Roberts Pool.

Line to El Paso

A month after the completion of the Shell corporation line Pasotex Pipe Line Co. (Standard of California) completed a 196-mile 8-inch welded line from the Hendricks Pool to El Paso. Pasotex Petroleum Co. built a 10,000 capacity refinery at El Paso and the pipe line company built the carrier to supply crude to the refinery. The line has a daily capacity of 18,000 bbls.

Atlantic Pipe Line Co. started con-

TOTAL EXPORT TANKER SHIPMENTS (BULK) OF CALIFORNIA OIL TO PACIFIC AND ATLANTIC FOREIGN PORTS

(In barrels of 42 U. S. gallons.)

	Crude oil	Fuel oil	Diesel and gas oil	Naphtha tops	Motor gasoline	Kerosene	Benzine	Lubricating oil	Total
1927—									
January	299,966	2,089,737	71,751	75,089	363,974	293,223	.....	9,120	3,202,861
February	442,105	2,665,186	49,122	.....	613,516	238,240	.....	.....	4,008,169
March	106,509	2,339,108	152,317	72,371	821,454	409,798	.....	.....	3,901,457
April	477,263	2,664,133	170,616	154,833	649,911	479,764	.....	.....	4,596,520
May	56,496	2,485,985	184,434	.....	1,362,264	91,673	.....	39,420	4,220,272
June	236,433	2,946,398	165,499	.....	464,343	236,841	.....	.....	4,049,514
Total first half	1,618,772	15,190,457	793,739	302,293	4,275,462	1,749,540	.....	48,540	23,978,893
July	63,839	2,783,423	146,361	.....	793,338	202,836	.....	4,750	3,994,547
August	85,354	2,621,568	108,760	.....	601,812	196,345	59,840	31,373	3,705,052
September	212,969	2,238,977	164,243	.....	893,917	90,510	.....	.....	3,600,616
October	181,850	3,144,532	195,548	.....	854,441	401,310	.....	5,004	4,782,685
November	88,994	2,651,660	234,722	75,099	849,995	335,196	.....	34,387	4,270,053
December	277,091	2,498,978	148,070	.....	1,165,875	239,660	.....	30,224	4,299,898
Total last half	910,097	15,939,138	997,704	75,099	5,099,378	1,465,857	59,840	105,738	24,652,851
Total year	2,528,869	31,129,595	1,791,443	377,392	9,374,840	3,215,397	59,840	154,278	48,631,654
1928—									
January	126,680	2,764,818	332,422	.....	898,896	515,062	.....	.....	4,637,878
February	222,794	2,013,419	152,360	.....	780,735	442,799	.....	32,462	3,644,569
March	149,066	2,315,005	330,074	.....	775,782	459,015	.....	2,698	4,031,640
April	228,795	2,127,815	259,521	.....	909,580	526,499	.....	103,719	4,155,929
May	317,755	2,223,100	262,875	.....	1,195,905	536,205	.....	2,678	4,548,518
June	54,164	2,395,314	206,651	.....	1,035,055	226,152	.....	.....	3,917,336
Total first half	1,099,254	13,849,471	1,543,903	.....	5,595,953	2,705,732	.....	141,497	24,935,819
July	201,038	1,776,224	275,127	.....	1,140,638	875,766	.....	13,701	3,945,986
August	73,453	1,890,014	215,618	.....	1,305,494	314,977	31,821	5,006	4,164,985
September	131,526	1,587,958	196,397	.....	1,241,188	165,440	.....	18,415	3,677,472
October	193,659	2,128,651	185,377	.....	1,727,374	211,813	.....	.....	4,118,272
November	313,449	1,649,355	143,027	.....	1,093,682	383,947	.....	.....	3,583,460
December	543,667	1,763,227	335,267	.....	1,588,910	250,391	.....	52,918	4,534,380
Total last half	1,456,792	10,795,429	1,350,813	.....	8,097,286	2,202,334	31,821	90,040	24,024,515
Total year	2,556,046	24,644,900	2,894,716	.....	13,693,239	4,908,066	31,821	231,537	48,960,335

TOTAL INTERCOASTAL SHIPMENTS OF CALIFORNIA OIL TO ATLANTIC AND GULF COAST PORTS

(In barrels of 42 U. S. gallons)

	Crude oil	Fuel oil	Diesel and gas oil	Naphtha tops	Motor gasoline	Kerosene	Lubricating oil	Asphalt	Total
1927—									
January	392,298	1,078,303	586,218	.....	746,760	.....	58,110	.....	2,861,689
February	860,729	919,571	304,053	.....	1,108,558	.....	.....	.....	3,192,911
March	582,941	927,125	490,236	.....	602,202	.....	53,860	.....	2,656,364
April	470,357	618,304	451,474	.....	767,642	.....	.....	.....	2,307,777
May	1,269,825	564,555	79,199	.....	1,079,681	.....	.....	.....	2,993,260
June	1,097,007	331,592	307,770	.....	960,390	.....	132,856	.....	2,829,615
Total first half	4,673,157	4,439,450	2,218,950	.....	5,265,233	.....	244,826	.....	16,841,516
July	1,201,637	334,472	314,453	.....	1,011,255	.....	.....	.....	2,861,817
August	1,324,873	517,101	230,951	.....	1,326,310	.....	69,172	.....	3,468,407
September	832,425	957,761	469,945	.....	1,040,491	.....	.....	.....	3,300,622
October	819,500	360,245	149,345	.....	979,424	.....	67,164	.....	2,375,678
November	876,378	72,154	461,623	.....	933,099	92,427	69,177	.....	2,504,858
December	897,809	.....	376,454	.....	926,255	238,545	.....	.....	2,439,063
Total last half	5,952,622	2,241,733	2,002,771	.....	6,216,834	330,972	205,513	.....	16,950,445
Total year	10,625,779	6,681,183	4,221,721	.....	11,482,067	330,972	450,339	.....	33,792,061
1928—									
January	234,383	1,904	311,097	.....	1,072,256	.....	85,263	1,173	1,706,076
February	415,024	79,426	92,612	.....	909,692	.....	975	2,405	1,500,134
March	423,471	196,041	257,118	.....	1,149,468	.....	69,243	5,905	2,101,246
April	233,419	266,362	170,031	.....	1,182,366	.....	69,511	718	1,922,407
May	161,534	85,389	250,982	76,468	1,386,386	.....	729	1,275	1,962,763
June	182,328	79,670	.....	.....	1,589,184	729	.....	2,332	1,854,243
Total first half	1,650,159	708,792	1,081,840	76,468	7,289,352	729	225,721	13,808	11,046,869
July	241,760	2,332	361,928	94,404	1,744,783	.....	730	1,356	2,447,294
August	162,450	2,327	165,148	88,344	1,699,778	.....	5,002	2,585	2,125,634
September	99,702	2,291	79,333	.....	1,268,887	.....	23,825	2,459	1,476,497
October	.....	127,832	283,032	79,635	1,601,547	36	4,433	3,600	2,100,117
November	146,842	2,320	282,570	.....	1,287,908	.....	72,597	2,521	1,794,758
December	.....	2,562	250,388	.....	1,887,000	.....	2,167	2,282	2,144,399
Total last half	650,754	139,664	1,422,400	262,383	9,489,903	36	108,756	14,803	12,088,699
Total year	2,300,913	848,456	2,504,420	338,851	16,779,255	765	334,477	28,611	23,135,568

struction work in July on the eighth trunk system out of West Texas. It is a 10-inch welded line from Midland storage center in Midland County to Atreco station near Port Arthur. This line is approximately 500 miles in length and has a capacity of 35,000 bbls. It was placed in service the latter part of December, 1928. The company built a 71-mile 10-inch line from the Hendricks Pool to Midland early in 1928 and by the addition of more station capacity this line was boosted to a daily capacity of 50,000 bbls. The line is operating to capacity moving oil from the Hendricks Pool to the Midland tank farm.

The Southern Crude Purchasing Co. is one of the major producers in the West Texas area, but its transporting subsidiary, Southern Pipe Line Co., does not have a direct trunk line outlet, although it has an extensive gathering system. Several rumors have been afloat the company planned to build an outlet to the coast.

Large Tank Car Shippers

Southern Pipe Line Co. has a gathering system in the McCamey district which extends on north to the Church and Fields Pool. This system terminates at McCamey, where the company has a rack. The Southern company has been more active in the Hendricks Pool in Winkler County, where it has two 6-inch lines running from the field to loading racks at Wickett. This company afforded the first outlet for the field and is now the largest tank car shipper in West Texas.

American Petroleum Co. is another large tank car shipper in the Hendricks area and has a 6-inch line running from the field to its loading rack at Pyote. Texon Oil & Land Co. has a 6-inch line from Hendricks that terminates at a refinery connection and rack at Pyote. Independent Oil & Gas Co. is another transporter out of Hendricks with an 8-inch line from the field to its rack at Pyote. All of the lines from Hendricks to Pyote, Wickett and Monahans are short systems ranging in length from 16 to 20 miles.

To Local Refinery

Skelly Oil Co. and Burford Oil Co. jointly own a 40-mile 6-inch line from the Hendricks Pool to Pecos City, where the Burford Oil Co. is building a 5,000-bbl. complete refinery. This line was completed in July, 1928, and oil is being run through it to the racks at Pecos City for shipment in tank cars.

Marland Oil Co. has four short lines in West Texas. That company has a gathering system in the McCamey district which went out of service in January, 1928, when the Marland company entered a three-year contract with the Humble company. Prior to that the Marland company was shipping crude in tank cars from McCamey. A 2-inch gathering system that extended north to the Church and Fields Pool was abandoned. Marland company built a 16-mile 6-inch system from Kemper tank farm in Reagan County to the World-Powell Pool, which was in service only a short time. Reagan County Purchasing Co. has a gathering system in the Big Lake Pool that terminates at Kemper tank farm and is gathering the crude produced in that pool.

Marland company has a 12-mile 4-inch line running from its loading rack at Coahoma in Howard County to the Chalk area. This line went out of service in the fall of 1927 when the Marland company contracted to deliver a maximum of 1,500 bbls. daily to the Col-Tex Refining Co. The latter company has 14 miles of 4-inch pipe running from the Westbrook Field in Mitchell County to its refinery at Colorado.

J. S. Cosden & Co. have completed a 35,000-bbl. capacity 8-inch line from the Roberts Pool to Big Spring to supply crude to the Cosden & Co. refinery now being built. Great Western Pipe Line, which is also building a plant at Big Spring, built a 4-inch line into the Roberts Pool to obtain a crude supply.

WEST TEXAS FIELDS

(Continued from Page 64)

No. 5 Dora Roberts made 500 bbls. at 2,900-84 feet. Its No. 17 Dora Roberts made 200 bbls. at 2,500-58 feet. Pure Oil Co.'s No. 8 Chalk, located in Section 125, Block 29, swabbed 50 bbls. after having been shot with 15 quarts at 1,750-60 feet. Ward Oil Co.'s No. 4 Dora Roberts, located 2,310 feet north and east of SW cor. Section 137, Block 29, swabbed 1,800 bbls. at 2,946-74 feet.

Howard County

Amerada Petroleum Corp.'s No. 3 Dora Roberts, located 990 feet south and west of NE cor. Section 136, Block 5, H.&G.N. R.R. Survey, was drilled to a total depth of 4,801 feet, plugged back to 2,565 feet and was estimated as making 10 bbls.

Garza County

Emerald Oil Co.'s No. 3 J. M. Boren, located 330 feet south and west of NE cor. Sec. 136, Blk. 5, H.&G.N.R.R. Survey, was drilled to a total depth of 4,801 feet, plugged back to 2,565 feet and was estimated as making 10 bbls.

Pecos County

Mid-Kansas Oil & Gas Co.'s No. 27-B, located 250 feet north and 845 feet east of NW cor. Section 60, Block 1, I.&G.N. R.R. Survey, made 2,480 bbls. hourly at 1,175-1,414 feet. California Co.'s No. 6 Smith, lease No. 1, Section 23, Block 194, made 110 bbls. hourly at 1,634-1,884 feet.

Runnels County

Vacuum Oil Co.'s No. 1 Brevard, located 2,150 feet north and 302 feet east of SW cor. Lot 21, D. Diaz Survey No. 532, was dry and abandoned at 2,594 feet.

Winkler County

Atlantic Oil Producing Co.'s No. 7-E Hendricks, located 330 feet from north line and 1,650 feet from east line Section 41, Block B-5, topped the lime at 2,235 feet and made 2,500 bbls. daily at 2,530-99 feet. Shell-Danciger and others' No. 1 Leck, located 2,310 feet north and east of Section 3, Block 74, topped the lime at 2,684 feet, topped the pay at 3,030 feet, had an initial production of 1,010 bbls. daily and was drilled to a total depth of 3,135 feet. Shell-Texas company's No. 11-A Hendricks, located 330 feet south and 1,180 feet west of Section 29, Block B-5, topped the lime at 2,641 feet, topped the pay at 2,700 feet, was drilled to a total depth of 2,934 feet and had an initial production of 1,000 bbls. hourly.

Skelly Oil Co.'s No. 2-B Hendricks, located 440 feet north and 1,650 feet west of Section 39, Block 26, topped the lime at 2,396 feet, topped the pay at 2,830 feet, was drilled to a total depth of 3,142 feet, plugged back to 2,900 feet, and had an initial production of 20 bbls. daily. Skelly Oil Co.'s No. 1-C Hendricks, located 2,145 feet south and 2,310 feet east of Section 10, Block B-12, topped the lime at 2,600 feet, had an oil show at 2,796-99 feet, topped the pay at 3,028 feet, was drilled to a total depth of 3,040 feet and had an initial production of 300 bbls. hourly, 15 per cent water. Southern Crude Oil Purchasing Co.'s No. 3 Hendricks T-88-D, located 2,310 feet south and 1,320 feet east, Section 4, Block B-12, topped the lime at 2,558 feet, topped the pay at 2,730 feet, was drilled to a total depth of 2,980 feet, and had an initial production of 185 bbls. hourly, 3 per cent water. Its No. 5 T-88-H, located 355 feet south and 990 feet west of NE cor. Section 28, Block B-5, topped the lime at 2,578 feet, topped the pay at 2,730 feet, was drilled to a total depth of 2,968 feet and had an initial production of 10,000 bbls. daily. Southern Crude Oil Purchasing Co.'s No. 4 Hendricks T-88-N, located 1,320 feet south and 330 feet east of Section 28, Block 26, topped the lime at 2,339 feet, topped the pay at 2,635 feet, was drilled to a total depth of 2,641 feet and had an initial production of 40 bbls. hourly. Its No. 2 Hendricks T-88-D, located 2,200 feet north and 330 feet east of SW cor. Section 28, Block 26, topped the lime at 2,485 feet, had 25,000,000 feet of gas at 2,692 feet, topped the pay at 2,819 feet, was drilled to a total depth depth of 2,825 feet and had an initial production of 100 bbls. hourly. Its No. 2 Hendricks T-89-E was drilled to a total depth of 3,180 feet, plugged back to 2,940 feet and made 33 bbls. daily.

Pipe Line Runs, West Texas

	Last period
Atlantic P. L. Co., Port Arthur	33,486
Gulf P. L. Co. to coast via Ranger	21,789
Humble P. L. Co., to coast via Comyn	38,957
Humble P. L. Co. to Ingleside	47,803
Illinois P. L. Co. to Del Rio	22,500
Magnolia P. L. Co. to coast via De-Leon	16,360
Pasotex P. L. Co. to El Paso	6,839
Shell P. L. Co. to Healdton (Okla.)	37,305
Total	225,039

Tank Car Shipments, West Texas

Orient Oil Co., McCamey	200
The Texas Company, Crossett	597
American Petroleum Co., Pyote	69
Cosden & Co., Big Spring	5,107
Shell Petroleum Co., Monahans	2,064
Skelly Oil Co., Pecos	1,369
Southern Crude O. P. Co., Wickett	15,709
Burford Refining Co., Pecos	4,131
Independent O. & G. Co., Monahans	863
Total	30,109

Runs to West Texas Refineries

Amarillo Prod. Co., Pyote	1,927
Blue Bonnett Refining Co., Wickett	3,953
Col-Tex Refining Co., Colorado	6,471
Humble Oil & Ref. Co., McCamey	5,439
Midland Refining Co., Midland	541
Tonkawa Refining Co., Pyote	2,763
Valley Refining Co., Pyote	3,348
Big Spring Refining Co., Big Spring	2,035
Total	26,477

Summary

	Previous week	Last period
Pipe line runs	232,623	225,039
Tank car shipments	29,478	30,109
Runs to refineries	31,576	26,477
Total daily distribution	293,677	281,625
Daily average production	350,016	361,299
Daily average to storage	56,339	79,674

PECOS COUNTY
YATES POOL
Week ended January 22

Company, lease—	Wells	Bbls.
California Co.:		
Yates—Lease 1	17	6,618
Smith—Lease 1, Sec. 27	3	418
Smith—Lease 1, Sec. 23	6	1,417
Smith—Lease 2	2	172
Smith—Lease 3	12	1,879
Tippett—Lease 1	1	41
Cosby Drilling Co.:		
M. A. Smith	1	379
Gulf Prod. Co.:		
All leases	32	9,040
Humble O. & R. Co.:		
M. A. Smith	10	1,171
Smith-B	5	649
Kirby Pet. Co.:		
J. H. Tippett	1	61
Kirby Pet. and Edson:		
Tippett	1	201
Marland Oil Co.:		
Yates-A	9	1,173
Matador Oil Co.:		
Smith	2	825
Mazda & Savoy:		
Smith	2	520
McMan O. & G.:		
Smith-A	1	524
Smith-B	4	815
Smith-C	4	228
Tippett	3	300
McMan and Marland:		
Yates	17	2,905
Mid-Kansas and Transcont.:		
Yates-A	24	10,874
Yates-B	25	5,002
Yates-C	11	4,052
Yates-D	6	5,588
Yates-E	1	111
Yates-F	4	558
Yates-G	4	832
Yates-H	7	4,767
Smith	3	975
Smith-Taylor	18	2,391
Oil Operators Trust:		
Pecos River	7	700
Pecos Valley Oil Co.:		
Fee, Sec. 22, Blk. 16	1	102
Phillips Pet. Co.:		
Smith	1	80
Red Bank Oil Co.:		
Smith	5	457
Shell Pet. Corp.:		
Tippett	11	1,839
Smith	9	796
Smith-B	1	872
Smith-D	3	421
Smith-E	1	44
Simms Oil Co.:		
Smith	7	4,211
Skelly Oil Co.:		
Tippett	1	101
Texon O. & L. Co.:		
Yates	2	0
Grand total Yates Field	285	74,109

WINKLER COUNTY
Week ending January 22
HENDRICKS POOL

Company, farm, sec., blk.—	Wells	Prod.
Amerada Pet. Corp.:		
Cowden, 3, B-12	3	822
Atlantic O. P. Co.:		
Hendricks-A, 34, B-5	8	1,573
Hendricks-B, 44, 26	3	417
Hendricks-D, 29, B-5	8	2,813
Hendricks-E, 41, B-5	6	2,930
Hendricks-G, 40, 26	7	2,901
Hendricks-H, 30, B-5	1	1
Atlantic and Collett:		
Hendricks-F, 40, 26	12	3,728
Bankers Prod. Co.:		
Hendricks, 30, B-5	1	310
California Co.:		
Hendricks, 29, B-5	8	1,543
Cranfill & Reynolds:		
Hendricks-A, 28, B-5	2	280
Hendricks-B, 35, B-5	1	110
Hendricks-C, 33, 26	2	308
Hendricks-D, 33, 26	1	Off
Hendricks-E, 33, 26	2	515
Cranfill and Texon:		
Hutchings, 47, 26	1	Off
Culberson Bros.:		
Hendricks, 40, B-5	1	100
Eastland Oil Co.:		
Hendricks, 33, B-5	2	463
Hendricks-B, 35, B-5	1	460
Gulf Prod. Co.:		
Hendricks-A, 34, B-5	13	3,825
Hendricks-B, 45, 26	11	8,500
Hendricks-C, 40, B-5	5	2,500
Hendricks, 44, 26	1	365
Cowden, 3, B-12	2	1,050
Humble O. & R. Co.:		
Hendricks-A, 34, B-5	17	5,957
Hendricks-B, 29, B-5	6	1,195
Hendricks-C, 32, 26	8	1,000
Hendricks-D, 47, 26	6	1,242
Hendricks-C, 10, B-12	1	735
Independent O. & G.:		
Hendricks-A, 34, B-5	7	1,700
Howe-B, 44, 26	2	143
McCabe, 36, B-5	2	440
Hendricks, 42, B-5	1	20
Vardeman-B, 41, B-5	6	1,011
Magnolia Pet. Co.:		
Hendricks, 29, B-5	8	936
Marland Oil Co.:		
Hendricks, 33, 26	4	1,510
Hendricks-A, 29, 26	2	227
Hendricks-B, 34, 26	1	254
May Prod. Co.:		
Hendricks, 34, 26	1	Off
Mining & Eng. Co.:		
Hendricks, 10, B-22	1	317
Murchison & Cranfill:		
Hendricks-A, 35, B-5	3	1,061
Hendricks-B, 35, B-5	3	925
Hendricks-C, 35, B-5	1	36
Hendricks-H, 33, 26	1	2,064
Hendricks-I, 47, 26	1	1,262
Prairie O. & G.:		
Hendricks, 40, 26	6	2,868
Cowden, 3, B-12	4	2,625
Pure Oil Co.:		
Hendricks-A, 41, B-5	11	2,581
Hendricks-B, 34, B-5	13	4,951
Hendricks-C, 45, 6	14	13,874
Republic Prod. Co.:		
Hendricks-A, 45, 26	6	2,575
Hendricks-B, 41, B-5	5	1,856
Hendricks-C, 42, B-5	5	319
Shell Pet. Corp.:		
Hendricks-A, 45, 26	6	1,509
Hendricks-B, 29, B-5	5	1,458
Hendricks-C, 29, B-5	8	4,083
Hendricks-D, 41, B-5	6	973
Hendricks-E, 49, B-5	4	1,170
Hendricks-F, 46, 26	7	3,646
Hendricks-G, 39, 26	1	88
Shell-The Texas Co.:		
Cowden-A, 3, B-12	6	2,225
Hendricks, 45, 26	6	2,237
Hendricks-A, 29, B-5	11	3,752
Hendricks-B, 40, 26	6	1,289
Hendricks-C, 40, 26	6	2,924
Hendricks-D, 40, 26	6	1,459
Hendricks-E, 40, 26	4	790
Skelly Oil Co.:		
Hendricks, 40, 26	12	10,485
Hendricks-B, 39, 26	2	24
Hendricks-C, 39, 26	1	95
Southern Crude O. P. Co.:		
T-67 Hendricks-A, 42, B-5	3	269
T-67 Hendricks-3-A, 4, B-12	4	817
T-67 Hendricks-B, 44, 26	5	980
T-67 Hendricks-3-B, 33, 26	4	900
T-67 Hendricks-C, 33, B-5	5	968
T-67 Hendricks-2-D, 28, 26	4	1,204
T-67 Hendricks-E, 42, B-5	4	168
T-67 Hendricks-F, 33, B-5	4	975
T-68 Hendricks-3-A, 33, B-5	4	408
T-68 Hendricks-B, 46, 26	1	273
T-88 Hendricks-A, 44, 26	6	1,234
T-88 Hendricks-B, 4, B-12	3	1,789
T-88 Hendricks-C, 29, B-5	7	1,556
T-88 Hendricks-D, 4, B-12	2	2,644
T-88 Hendricks-H, 28, B-5	5	1,029
T-88 Hendricks-I, 30, B-5	7	1,813
T-88 Hendricks-J, 30, B-5	5	1,640
T-88 Hendricks-K, 41, 26	4	1,299
T-88 Hendricks-L, 4, B-12	3	589
T-88 Hendricks-M, 33, 26	29	13,166
T-88 Hendricks-N, 28, 26	4	1,230
T-88 Hendricks-O, 28, 26	1	456
T-88 Hendricks-P, 28, 26	1	360
T-88 Hendricks-Q, 27, 26	1	488
T-88 Hendricks-R, 27, 26	2	1,104
T-88 Hendricks-S, 34, 26	3	1,162
T-88 Hendricks-T, 34, 26	5	900
T-88 Hendricks-U, 41, 26	7	1,727
T-88 Hendricks-V, 29, 26	1	141
T-88 Hendricks-W, 5, B-12	1	486
T-89 Hendricks-A, 35, B-5	3	359
T-89 Hendricks-B, 35, B-5	2	351
T-89 Hendricks-C, 35, B-5	1	422
T-89 Hendricks-E, 40, B-5	2	Off
T-89 Hendricks-F, 40, B-5	1	149
T-89 Hendricks-N, 46, 26	1	68
T-90 Hutchings, 47, 26	1	131
T-264 Hendricks, 5, B-12	1	Off
Texon O. & L. Co.:		
Hendricks-A, 41, B-5	6	939
Hendricks-B, 45, B-5	5	1,023
Winkler O. P. Co.:		
Hendricks, 33, 26	1	136
Total Hendricks Pool	506	172,768

LECK AREA

Atlantic, Kesslar and Logan:		
Leck, 3, 74	2	853
Amerada Pet. Corp.:		
Leck, 3, 74	2	336
Empire G. & F. Co.:		
Daugherty, 3, 74	1	440
Magnolia Pet. Co.:		
Scarborough, 1, C-22	1	145
Shell and Llano Oil:		
Scarborough, 1, C-22	2	103
Shell and Danciger:		
Leck, 3, 74	2	451
Total Leck area	10	2,328

O'BRIEN POOL

Wentz Oil Corp.:		
Tobe Morton, 16, B-12	1	530
Richardson et al:		
Stockton, 50, F	1	281
Total O'Brien Pool	2	811
Grand total Winkler County	518	175,907

PANHANDLE FIELDS

(Continued from Page 63)

No. 6 Waggoner-F made 15 bbls. at 2,325-74 feet and was drilled to a total depth of 2,405 feet. Waggoner Refining Co.'s No. 4 Waggoner-G made 100 bbls. at 2,325-44 feet and 2,442-58 feet.

Wichita County

J. Cable and others' No. 1 H. B. Hines was dry and abandoned at 850 feet. Coleman & Coppack's No. 13 Kemp & Kempner made 35 bbls. at 1,020-27 feet. Hammon & Garrett's No. 5 McCarty-D made 30 bbls. at 1,296-1,324 feet. Harry Hines and others' No. 13 J. & J. Waggoner made 28 bbls. in 16 hours at 1,431-51

H. Taylor made 200 bbls. at 1,463-87 feet. Its No. 8 Taylor made 75 bbls. at 1,473-87 feet. Its No. 9 Taylor made 200 bbls. at 1,473-92 feet. Ryan Petroleum Corp.'s No. 105 Nance made 100 bbls. at 1,370-92 feet. Its No. 106 Nance made 45 bbls. at 1,382-1,410 feet. Staley & Wynne's No. 11 Kemp Kempner made 180 bbls. at 1,471-75 feet and was drilled to a total depth of 1,485 feet. Their No. 12 Kemp & Kempner made 400 bbls. at 1,462-91 feet. United Production Co.'s No. 2 Allen & Kemp made 92 bbls. in 12 hours at 1,477-92 feet.

RANGER DISTRICT
Week Ended January 26

Brown County

Burris and others' No. 11 Newton made 20 bbls. at 1,189-1,220 feet. Daniels and others' No. 1 Leslie was dry and abandoned at 1,356 feet. Davis and others' No. 1 Thompson was dry and abandoned at 1,970 feet. Humble Oil & Refining Co.'s No. 9 Byler made 100 bbls. at 1,307-24 feet. Its No. 18-A Hodnett was shot with 10 quarts at 1,193-1,209 feet and made 6 bbls. McCartney's No. 1 Suttles was shot with 20 quarts at 1,132-44 feet and dry and abandoned at 1,154 feet. Mook Texas & Wakefield's No. 5 Newton was dry and abandoned at 1,384 feet. Phillips Petroleum Co.'s No. 18 Hickman was dry and abandoned at 1,295 feet. Prairie Oil & Gas Co.'s No. 1 Bull was temporarily abandoned at 1,147 feet. Valley Oil Co.'s No. 12 Teston made 50 bbls. after having been shot with 10 quarts at 1,192-1,202 feet and was drilled to a total depth of 1,205 feet. Bruce's No. 1 Shields-A was dry and abandoned at 640 feet. Dennis' No. 1 Mooren was temporarily abandoned at 1,306 feet. Garrett & Hammon's No. 2 Starkey was dry and abandoned at 1,215 feet. Humble Oil & Refining Co.'s No. 1 Fuller was dry and abandoned at 1,801 feet. Royalty Oil Corp.'s No. 1-B Jopling was temporarily abandoned at 1,773 feet.

Callahan County

Hurley and others' No. 1 Freeman was dry and abandoned at 701 feet. Moutray Oil Co.'s No. 12 Hatchett was dry and abandoned at 375 feet. The Texas Company's No. 1 Williams was dry and abandoned at 376 feet.

Coleman County

Independent Oil & Gas Co.'s No. 1 Featherspoon was dry and abandoned at 4,325 feet. Red Bank Oil Co.'s No. 1 Blair was dry and abandoned at 3,198 feet. Taylor and others' No. 1 Young Brothers made 5,500,000 feet of gas at 1,654-58 feet. Dunaway and others' No. 1 Baugh was dry and abandoned at 1,401 feet. Humphrey Brothers, Inc., No. 1 J. Matthews, location was abandoned. Preddy and others' No. 1 Kingsberry, location was abandoned. The Texas Company's No. 1 Beatty made 20 bbls. at 1,106-16 feet.

Eastland County

Hammon Oil Co.'s No. 2 Miller was dry and abandoned at 4,000 feet. Arnold and others' No. 2 Rust made 600,000 feet of gas at 1,503-29 feet and was drilled to a total depth of 1,569 feet. Chestnut & Smith Corp.'s No. 1 Alexander, location was abandoned. Thompson and others' No. 1 Green was temporarily abandoned at 2,040 feet.

Palo Pinto

Hughes and others' No. 1 Perkins was temporarily abandoned at 3,825 feet.

Stephens County

Phillips Petroleum Co.'s No. 4 Stoker-A was dry and abandoned at 4,445 feet. States Oil Corp.'s No. 1 Hall was dry and abandoned at 4,414 feet.

Shackelford County

Cranfill & Reynolds' No. 1-D Flippen was dry and abandoned at 1,285 feet. Midwest Exploration Co.'s No. 3 Dyer was dry and abandoned at 1,185 feet. Morrison Oil Co.'s No. 1 Nail was dry and abandoned at 1,200 feet. Ohio Texas Oil Co.'s No. 11 Matthews made 450 bbls. at 1,133-53 feet. Roeser & Pendleton's No. 33-A-61 Cook made 75 bbls. at 1,218-48 feet. Their No. 9-B-61 Cook made 40 bbls. at 1,334-39 feet. Their No. 10-B-61 Cook made 40 bbls. at 1,333-43 feet. Terry and others' No. 2 Flippen was dry and abandoned at 1,205 feet. Wichita Production Co.'s No. 5 Myer made 500,000 feet of gas at 627-31 feet. Their No. 6 Myer made 25 bbls. at 988-1,003 feet.

MORE THAN 193,810,931 BBLS. IN WEST TEXAS

(Continued from Page 54)

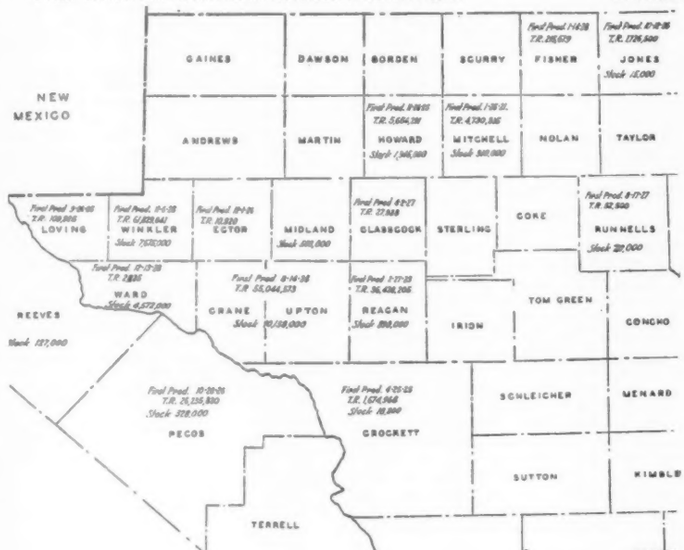
covery to January 1 and the stock in steel storage on the first of the year.

More than 36,000,000 bbls. of oil was in storage in West Texas on the first of the year and the total amount of storage was in excess of 50,000,000 bbls. Approximately 29,000,000 bbls. of this storage was built in 1928. During that year the tank car shipments totaled 22,620,000 bbls. and 17,770,000 bbls. of this was shipped from the Hendricks Pool.

The following is a table showing the recovery in West Texas by counties and the number of producing wells:

ESTIMATED RECOVERY OF EACH PRODUCING COUNTY IN WEST TEXAS SINCE THE DISCOVERY OF FIRST WELL

County and pool—	Number wells	Date of first prod.	Recovery to date (bbls.)
Crane-Upton, Church-Field and McCamey district	556	8-14-25	55,044,573
Crockett, World	42	4-25-25	1,674,968
Ector, Connell	2	12- 1-26	19,920
Fisher, Stephens	7	1-14-28	215,679
Glasscock, Settles	4	4- 2-27	27,928
Howard, Chalk	232	11-26-25	5,654,291
Jones, Noodle Creek-Tiner & Bickley	55	10-12-26	1,726,500
Loving, Wheat	8	9-26-25	109,925
Mitchell, Westbrook	140	1-25-21	4,730,315
Pecos, Yates	287	10-28-26	26,235,820
Reagan, Big Lake	231	5-27-23	36,428,205
Runnels, Elm Creek	3	8-17-27	52,500
Scurry, Ira	5	3-22-24	66,969
Ward, Shipley	1	12-13-28	2,852
Winkler, Hendricks	466	11- 6-26	61,829,041
Total	2,039		193,810,931



—Base Map by Logan Map Co.

Map of West Texas showing date of first production, total recovery, total storage on January 1, 1929, by counties.

GASOLINE PRICES IN OKLAHOMA REDUCED

(Continued from Page 52)

between the two schedules, complicates both the retail and refinery contract market.

A contract for Detroit delivery guaranteeing the buyers a 4-cent margin under the tank wagon will net the Oklahoma refinery 7.1 cents per gallon. In contrast, a contract based on 6-cent margin under service station price will net the refiner 6.1 cents a gallon. Thus a contract based on tank wagon will bring the refiner about the same as he is asking for spot shipments. The 6-cent service station contract will tend to establish a market around 6 cents for the 58-60 U. S. Motor grade. The contract prices for Detroit are a little lower than most of the points in the Standard of Indiana territory, but the comparison between the contracts based on the tank wagon and service station prices will apply at all points.

A majority of the trade feels that reduction in tank wagon and service station prices was needed to correct an unhealthy condition in the retail market as the result of the wide spreads between the tank wagon and refinery gasolines. Predictions are heard that additional changes will be made either in the regular tank wagon and service station prices or the quantity discount plan of sales to dealers and retail customers.

Future Trend

Buyers and sellers are awaiting further developments in regard to the gasoline market. The establishment of a price of 7 cents on U. S. Motor gasoline to the jobbing trade by the major refiners was lower than had been anticipated and indicates that these refiners are determined to narrow the wide margins that have prevailed for several weeks in the spot market. Most of these larger refineries since the first of the year had been maintaining a price of 8 cents to the trade. Gasoline of that grade, however, had been available as low as 7¼ cents from other refiners in the State and under 7 cents in West Texas on Group 3 basis.

It is doubtful if these smaller refiners will be able to make a similar reduction in their prices. West Texas refiners as yet have not received any reduction in their crude oil prices and the fact that very little change was made in the lower gravity grades in the other Mid-Continent areas indicates that any reduction will be small. Previous to the crude oil reduction it was apparent that the West Texas refiners with favorable fuel oil contracts were in a position to manufacture gasoline at lower prices than most of the refiners in North Texas, Oklahoma, Kansas, Arkansas and North Louisiana. Some of these refiners now have surplus fuel oil which they are selling at prices which makes their entire operation less attractive. Provided the West Texas crude prices are not reduced the developments of the past week are interpreted to mean that all Mid-Continent refineries will be nearer a parity in regard to refinery operating costs, a situation which should be reflected in narrower differentials in gasoline prices.

Gasolines and Naphthas

The weighted average prices on Monday as reported by major refiners Oklahoma were not representative of t Oklahoma market on Tuesday. Most the reductions as previously explain became effective on Tuesday. From t time the crude oil reductions were a nounced on Thursday of last week m Tuesday both contract and spot busine in gasoline was slow. The buyers we confident that lower refining and tru wagon and services station prices wou result from the crude price reduction a held down their purchases to a mi mum. Weather conditions in the midd western states were not favorable fro the standpoint of gasoline consumptio and this fact also tended to retard tru car purchases. Sellers with the lowe prices were expecting a better movemen over the balance of the week.

Naphtha prices were reduced also with the regular grades of gasoline. Th 50-52 450 grade was quoted at 6¾ cen on Monday. A few refiners in Okl homa and adjoining areas are offering naphthas to the jobber trade at around 6½ cents. These grades have a low in tial and low endpoint. The jobbers u blending with large quantities of Grad BB and C natural gasoline have mote fuel which is high in gravity and is rep to be a highly satisfactory gasoline fo the winter trade.

Kerosene and Distillates

Several refiners reduced their price on kerosene one-quarter cent the firs of the week. The movement is fair and the price reduction was apparently due largely to the fact that the refiners be lieved some reduction was necessary du to the lower crude oil prices. The higher gravity kerosenes were unchanged.

The cold weather which has slowed up the gasoline movement has again aided the distillate demand. Several refiners the first of the week said they could have sold twice as much distillate if it had been available from their refineries. Low cold test and low flash distillate were in demand from jobbers who were willing to boost their price from an eighth to a quarter cent a gallon to ob tain immediate delivery.

Fuel Oil and Gas Oils

As has been the case for several weeks the higher gravity fuel oils of low cold test and the better grades of gas oil shared in the demand for furnace oils. Some of the high gravity fuel oils of low cold test were practically unobtainable in Oklahoma during the past week. These grades are suitable for cracking and very little is offered as fuel. Refiners are making all kinds of high gravity fuel oils, gas oils and distillates in an effort to supply this furnace oil demand.

Natural Gasolines

On Tuesday, Grade A was firm at 7¾ cents and Grade AA was quoted at 6¾ cents. These prices were the result of steady buying in which two of the large Oklahoma manufacturers participated. The Grade BB was available in quantities at 5½ cents and Grade C at 5¼ cents.

The lower refinery gasoline prices have cast a shadow over the February outlook for natural gasolines. The manufacturers previously had been confident that a relatively high February market would be maintained. On Monday and Tuesday all grades were offered for February shipment under the spot market for the remainder of January indicating lower prices were in prospect with the opening of the new month.

Lubricating Oils and Wax

The developments in gasolines and other products completely overshadowed the lubricating oil and wax market. Cylinder stocks continued strong but the demand for neutral oils is slow despite the lower prices which became effective last week. Wax prices were not changed.

DEATH OF GEORGE BAUMAN

George Bauman, former general manager of the Cumberland Pipe Line Co. who has been retired from active business for the past 13 years, died at Hot Springs, Ark., where he had made his winter home for some years. He lived in Oil City during the summers.

WILDCAT FAILURES IN EAST CENTRAL TEXAS

By Neil Williams

CORSICANA, Tex., Jan. 28. — The failure of two wildcat tests, one in Smith County in the inland salt dome district, and the other in Freestone County, marked the only completions in the East Central Texas division during the week. Humble Oil & Refining Co. was bailing on a semiwildcat at Boggy Creek Dome, Anderson County, but up to Monday night the well had made only a few small heads and looked disappointing.

Amerada Petroleum Corp.'s No. 1 Christian, F. Flores Survey, Smith County, was abandoned in white sand at 5,400 feet. This test had been watched closely, but failed to show anything of importance and was dry at that depth. Hoosier and associates' No. 1 Session, Sweet Survey, Freestone County, was the other abandonment. It was quit in a water sand at 3,348 feet.

At Boggy Creek, Humble Oil & Refining Co. was testing a sand at a total depth of 3,595 feet. This well is approximately 2,000 feet from production, but between the main field on the southeast flank of the dome and a wildcat producer on the south side. Other operations at Boggy Creek were routine with this company's No. 3 Lizzie Smith, drilling in shale at 2,535 feet; its No. 1 Hurd, in shale at 1,847 feet. Humble is rigged up for No. 4 Earle & Ragsdale (Cherokee County), is moving in a rig for No. 1-B Jones and is building a derrick for No. 1 Neches River.

On the Keechi Dome in Anderson County, J. S. Cosden and associates' No. 2 Douglass is drilling shale and lime at 3,410 feet. Pure Oil Co. has started drilling in Van Zandt in its No. 1 Neils and is at 401 feet in sticky shale.

Paggi Brothers' No. 1 Adams, Falls County, is drilling shale at 1,560 feet. Youst and associates' No. 1 Pamplin, same county, still is standing after spudding in several weeks ago. Haley & Young's No. 1 Night, Freestone County, has drilled to 3,610 feet in shale, but at present is delayed by a fishing job. Henderson Petroleum Co.'s No. 1 Cade, Henderson County, Dorsey Survey, is drilling shale at 520 feet.

In Leon County, Ballard Oil Corp.'s No. 1 Tubbs is drilling hard rock at 1,602 feet and Patty and associates' No. 1 Randall is drilling sticky shale at 302 feet. Riverland Oil Co.'s No. 1 Hancock, Limestone County, is drilling chalk at 1,804 feet. Pin Oak Oil & Gas Syndicate's No. 1 Forest has been shut down after drilling to 2,848 feet.

J. K. Hughes and associates' No. 1 McGowan, Navarro County, is drilling mud and sticky shale at 3,142 feet. H. A. Mason and associates' No. 1 Marchbanks, Navarro County, is a derrick.

Daily average production in East Central Texas the past week was:

EAST CENTRAL TEXAS

Boggy Creek	2,665
Cedar Creek	240
Circle	520
Mexia	6,058
Minerva	725
Nigger Creek	405
Powell	9,134
Richland	456
Thrall	33
Wortham	1,440
Total this week	21,676
Total last week	21,551
Increase	125

CHARLES A. DANIEL DIES

PHILADELPHIA, Pa., Jan. 28.—Charles A. Daniel, president of the Quaker City Rubber Co., died in his home here following a short illness. Mr. Daniel graduated from the Philadelphia College of Pharmacy and had started on a pharmaceutical career when he changed his mind, entered the rubber business and later established the Quaker City Rubber Co. He was a director of the Philadelphia National Bank, a Mason and had served as trustee of Grace Baptist Church, founded by the late Dr. Russell Conwell. He was active in the Philadelphia, Pennsylvania, National and International Chambers of Commerce. He leaves his wife and two daughters.

BIGNELL HEADS A.I.M.E. MID-CONTINENT SECTION

The Mid-Continent section of the American Institute of Mining and Metallurgical Engineers held its first meeting for the year 1929 at the Mayo Hotel,

L. G. E. Bignell

Tulsa, January 28. The following officers were unanimously elected: Chairman, L. G. E. Bignell, Parkersburg Rig & Reel Co., vice chairmen, R. R. Bradenthaler, United States Bureau of Mines; Harold C. George, University of Oklahoma; and W. K. Whiteford, Barnsdall Oil Co.; secretary-treasurer, Harry H. Power, Gypsy Oil Co.; executive committee, Paul Ruedemann, The Ralph E. Davies engineers; Earl S. Porter, Gypsy Oil Co.; H. B. Goodrich, consulting geologist; E. O. Bennett, Marland Oil Co.; program committee, Paul Ruedemann, W. K. Whiteford, R. R. Bradenthaler and E. O. Bennett. The chairman, vice chairmen, and secretary-treasurer of the preceding year are also ex-officio members of the executive committee for the current year. The ex-officio members of this committee for 1929 are Charles V. Milliken, C. E. Beecher, L. G. E. Bignell, C. W. Tomlinson and J. R. McWilliams.

An excellent discussion of the "Determination of Open Flow Capacities of Gas Wells from Pressure Readings," was presented by E. L. Rawlins of the United States Bureau of Mines Petroleum Experiment Station at Bartlesville, Okla. Mr. Rawlins outlined the importance of the problem, the method of attack, the difficulties involved, and the results thus far obtained by both government and company engineers, who are working together to accomplish greater accuracy and conservation in the measurement of the open flow capacities of gas wells. He showed that the usual method of open flow measurement would waste $10,000 worth of gas per month in the Chickasha Field alone and that results thus far obtained through the study of gas wells in the Gulf Coast, Mid-Continent and Appalachian Fields indicate that it will be possible to calculate the open flow capacities of gas wells at any closed in pressures, if the open flows are measured at back pressures of 95, 90 and 85 per cent of the closed in pressure. These results are being further checked by field and laboratory experiments and will be issued to the public in a preliminary report by Mr. Rawlins within a few months.

Among the factors which Mr. Rawlins listed as effecting the results of his tests and adding to the difficulty of the work are variations in back pressure, differences in depth, different sizes of pipe used, various friction drops, various characteristics of the sands, and the differences in gravity of gas. In closing his discussion, Mr. Rawlins invited those who may have information bearing upon his problem to contribute it to the Bureau of Mines at the earliest possible time, so that it may be incorporated in his preliminary report.

PRELIMINARY PROGRAM FOR A.I.M.E. MEETING

The preliminary program for the annual meeting of the American Institute of Mining and Metallurgical Engineers, February 18-22, in New York has just been completed. The Petroleum Division will offer sessions on petroleum engineering and economics on Wednesday. The annual production symposium will begin Wednesday afternoon and extend through the next day with sessions on petroleum engineering education and petroleum research on Thursday. The annual dinner will be held at the Engineer's Club on the evening of the latter day, with a general review session following.

The Petroleum Division will present this year an unusually complete symposium on production, with especial emphasis on shut-in production. Among those taking part will be: George Anagnostache, Ralph Arnold, Olin G. Bell, Sir John Cadman, A. R. Denison, J. Terry Duce, G. R. Elliott, J. Th. Erb, Anthony Folger, V. R. Garfias, Joseph Jensen, F. F. Lahee, A. M. McQueen, Gilbert P. Moore, J. B. Newby, Jose M. Sobral, W. R. Wardner, H. J. Wasson, W. S. Wender, Dean E. Winchester, Basil B. Zavoico.

Papers to be presented at the meeting will include the following:

"The Interpretation of Gravitational Anomalies," by H. Shaw.

"Theory of Adolph Schmidt's Horizontal Field Balance," by C. A. Heiland.

"The Seismic Method of Mapping Geologic Structure," by D. C. Barton.

"Calculations in the Interpretation of Observations with the Eotvos Torsion Balance," by D. C. Barton.

"The Radioactive-Atmospheric Method of Measurement for Geophysical Prospecting," by Andrew V. Corry.

"Analyses of Waters of the Salt Creek Field Applied to Underground Problems," by J. S. Ross and E. A. Swedenborg.

"The Effect on Producing Wells of Shutting in the Offset Wells," by C. M. Nickerson.

"Gasoline Economics and Refinery Operation," by H. J. Struth.

"The Crude Oil Supply," by Howard S. Bryant.

"Core Studies of the Bradford Sand From the Bradford Field, Pennsylvania," by C. R. Fettke.

A general session of the institute on "control of production" will be held Tuesday afternoon. W. H. Hamilton of the Yale law faculty will discuss the legal-economics aspect of production control, and one of the leaders in the petroleum industry will explain exactly what it has been possible to accomplish in that industry and what is under way.

The Committee on Geophysical Methods of Prospecting will offer a program on Wednesday morning and hold an executive session in the afternoon at which it is proposed to discuss the modification of the mining law to admit evidence of discovery from geophysical tests.

SCHOOL LAND INCOME TAXABLE

WASHINGTON, D. C., Jan. 26.—Income derived from the sale of oil and gas produced from school lands owned by the State of Oklahoma is not exempt from federal income and profits taxes, according to a decision by the Board of Tax Appeals in the case of the Coronado Oil & Gas Co., petitioner against the Commissioner of Internal Revenue, respondent.

SOUTHERN GROUP BANQUET

OIL CITY, Pa., Jan. 26.—Directors, officers and employes of the Southern Group of Pipe Lines were the guests at a banquet given Wednesday night in the Arlington Hotel by Forrest M. Towl, president of the system, of New York City.

In addition to a large number of Oil City residents, the following were present: Forrest M. Towl, Allan T. Towl, New York City; Theodore C. Towl, J. J. Kenney, R. L. Cronise, Pittsburgh, Pa.; D. J. Jolly, Washington, Pa.; E. W. Macklin, Parkersburg, W. Va.; Joseph A. Geiger, P. H. Leonard, J. H. Gardner, W. H. Keffer, Winchester, Ky.; F. M. Kent, Parkersburg, W. Va.; C. K. Simmons, L. S. Devol, Pittsburgh, Pa.

OIL BOARD ADVISOR

Scott Turner, director of the United States Bureau of Mines, has been designated by Secretary of Commerce Whit-

Scott Turner

ing to represent the Department of Commerce on the Advisory Committee of the Federal Oil Conservation Board.

The petroleum engineers and analysts of the Bureau of Mines have for some time been engaged in the preparation of material to be submitted for inclusion in the third report of the Federal Oil Conservation Board, which will deal principally with the subject of petroleum research in foreign countries.

THREE MILLION INCREASE IN GASOLINE INVENTORIES

Gasoline stocks east of California increased over 3,000,000 bbls. according to information compiled by the American Petroleum Institute covering 89 per cent of the operating capacity east of California. Fuel oil and gas oil stocks decreased over 2,000,000 bbls. during December with a substantial decrease in kerosene stocks.

The following table summarizes the report covering crude oil and refined products for December:

(Barrels of 42 gallons)

	Increase	Decrease
Domestic crude oil	.....	1,548,000
Foreign crude oil	960,000	.....
Gasoline	3,038,000	.....
Kerosene	.....	369,000
Gas and fuel oils	.....	2,005,000
Lubricating oil	396,000	.....
Miscellaneous	685,000	.....
Total	5,079,000	3,922,000
Deduct	3,922,000	.....
Net increase	1,157,000	.....

ROBERTS-SETTLES RUNS

Runs from the Roberts-Settles Pool, Howard and Glasscock Counties, Texas, from December 16 to January 16, in lime pay below 1,800 feet, follow:

Amerada Petroleum Co.	32,986
American Maracaibo Co.	19,496
Cosden & Co.	37,542
Coyle-Concord	28,183
Group 1 and Marland	49,484
Louisiana Oil and Refining Co.	32,151
Marland Prod. Co.	16,557
Magnolia Pet. Co.	116,508
Merrick-Bristow	50,310
Owen-Sloan & Cosden Co.	94,525
J. B. Schermerhorn Co.	86,046
Sprague Oil Co.	21,502
Sun Oil Co.	68,247
Superior Oil Co.	141,595
Taylor-Link Oil Co.	5,490
Total	880,622

Oil Pipe Line Construction in 1928

Big Projects Started and Finished to Take Care of Increasing Production in Various Producing Divisions

Last year was another period of long-distance, large-capacity pipe line building. Some of these lines were completed, others were started last year and will be completed early in 1929. Most of the pipe line work was done to take care of production in the West Texas and Oklahoma Fields. Some of the Mid-Continent lines were directed toward the Gulf of Mexico and others for the Chicago district.

Pipe Liners Busy in Oklahoma

There was a considerable amount of pipe line construction work done in the Oklahoma territory last year. The steady and sure advance of the various pools of the Greater Seminole region, and the development of the St. Louis Pool of Pottawatomie County necessitated additional line spread from the older territories.

The first field to necessitate construction in 1928 was the Little River Pool. This was located approximately 6 miles south of the Bowlegs Field, and was situated in Township 7-6, Seminole County. At the time the Little River Field loomed as an important operation, practically all of the principal pipe line systems were running oil from the Bowlegs Feild. The work of connecting up with Little River therefore required only about 6 or 7 miles of line construction and one additional station.

The following companies built 6-inch lines from Bowlegs to Little River: Sinclair Pipe Line Co., Prairie Pipe Line Co., Oklahoma Pipe Line Co., Gulf Pipe Line Co., Empire Pipe Line Co., and Magnolia Pipe Line Co. There was a tight pipe line situation existing for some time at Little River, and this prompted the Gulf Pipe Line Co. to consider building additional line capacity. The Gypsy Oil Co., owned by the same management as the Gulf Pipe Line Co., was especially well fortified with desirable acreage in the Little River Field. It looked as if the Gulf would be unable to take care of its customers' requirements and also handle the product of its own leases. For this reason the Gulf Pipe Line Co. constructed an 8-inch line from its main north and south artery to the Little River Field. The main line was tapped at McAlester, Okla. The 8-inch line was built a distance of 52 miles, and this was one of the main pipe line projects constructed within the borders of Oklahoma last year.

The rapid measure of development in the St. Louis region of Pottawatomie County after the discovery of oil in the Wilcox sand caused a noticeable change in the pipe line requirements of that field, with the result that additional line capacity was constructed to serve this region. The St. Louis Pool caused the following 6-inch lines to be built. Sinclair Pipe Line Co. laid a line from its main line to the field a distance of 14 miles. The main line was tapped between Pauls Valley and Shawnee, Okla. The Prairie Pipe Line Co. carried a line from the line which had been built from Panova station to the Seminole area, and this caused construction of 16 miles of line.

The Oklahoma Pipe Line Co. entered the St. Louis region from Little River running 8 miles of line. The Tidal Pipe Line Co. built a line from the old Seminole City Pool to St. Louis. The Magnolia Pipe Line Co. already had a line into the St. Louis Pool on account of its own production in the Hunton lime in that area. The new find caused it to increase the capacity of this system.

Three Major Projects

There were three major pipe line projects announced during the year, and while these were of an interstate character, they all originated in Oklahoma. The first project was the Sinclair Pipe Line Co. which is now engaged in increasing the capacity of its line from Drumright, Okla., to Chicago, Ill. The increase was done by a system of loops, and about 450 miles of actual construction work on new lines was necessary. There were very few station changes necessitated by the work on the Sinclair line, it being mainly a case of building 8-inch, 10-inch and 12-inch loops. This work is now half completed.

The second pipe line project of importance was the announcement that the Texas Pipe Line Co. and the Empire Pipe Line Co. would lay a joint line from Drumright, Okla., to the Great Lakes region. The Texas Company has a refinery at Lockport, Ill., and it is assumed that the Empire company will construct a refinery somewhere along the route of the line. The line as announced will be a 10-inch line, and construction on the project has already started.

The Prairie Pipe Line Co. at the close of 1928 announced that it would amplify its lines to the Great Lakes by the construction of a series of loops which will give it 20,000 bbls. daily additional capacity. The move was caused by the congested condition of the Prairie line which had been running at capacity for the past two years. The work necessitates the building of 463 miles of 8-inch, 10-inch and 12-inch lines, and work on this will be started during the spring of 1929.

Construction Work in Kansas

There was very little pipe line work done in Kansas last year. The extension of some systems into the Lost Springs district of Marion County, and the work occasioned by the discovery of oil in the Wright Pool of Sedgwick County constituted the chief activity of this nature.

The drilling of the Lost Springs Pool of Marion County caused the construction of two pipe line systems into that territory. The Prairie Pipe Line Co. laid a 6-inch line from a point near its Florence station, in the southeast part of Marion County, to the Lost Springs Pool. This was a distance of 26 miles, and the line caused the construction of one additional station at the field.

The Sinclair Pipe Line Co. built a 6-inch line from its system in the Butler County territory to the Lost Springs Pool. This work caused the construction of 40 miles of line and one station.

The discovery of oil in the Sedgwick County Field caused considerable pipe line work to be started, the majority of which is unfinished. Now that this pool looms more important, there has been much planning regarding crude oil transportation. There were two short pipe lines laid from the Wright Pool to refineries located in or near Wichita. The pool is only 6 miles from the city of Wichita. The Derby Oil Co. laid a 4-inch line from the pool to its Wichita plant, and the Barnsdall Oil Co. also laid a line of similar size from the field to the refinery which it operates at Wichita. The White Eagle Oil & Refining Co. built a short line from the field a distance of 2 miles to a railroad where it constructed a loading rack. This company has announced its intention of starting a pipe line from the Wright Pool to its refinery at Augusta.

The Marland Oil Co. has announced that construction work will soon start on a 6-inch line from the Oxford townsite Pool of Sumner County to the pool. This is a distance of 33 miles.

North and West Texas

Four major trunk line systems were completed in West Texas during 1928 and at the opening of the new year two more such carriers were under the course of construction. In addition to that work there was considerable looping and extension work done in West Texas. North and North Central Texas had little new work in pipe line construction and Texas Pipe Line Co.'s big project was the only one of size.

Early in June, Texas Pipe Line Co. started construction of 352 miles of pipe line to afford an outlet for its Panhandle production. A 155-mile 8-inch electric welded line was completed in December running south from Lefors in Gray County to Electra in the Wichita Falls district. In order to handle the additional load a 146-mile electric welded 8-inch line was built from Corsicana to San Augustine, connecting with its Louisiana-Arkansas line to the Gulf, and was in service the latter part of December. As a part of the expansion program a 31-mile 8-inch line was built from Olney to South Bend and a small amount of loop work completed.

The remaining pipe line work in North and North Central Texas was confined to the looping of existing lines and the construction of short systems feeding into main lines.

Atlantic Pipe Line Co., Illinois Pipe Line Co., Shell Pipe Line Corp., and Pasotex Pipe Line Co. each finished major construction jobs in 1928, the details of which will be found in a West Texas pipe line review on page 98.

Rocky Mountain Lines

Pipe line construction for the transporting of oil in the Rocky Mountain area was limited to a few projects in 1928. There were no new lines built in either New Mexico or Utah during the year. In Colorado, construction was limited to two short lines in Moffat County to complete the system for handling crude from the Iles Dome. Both of these were completed and put in operation at the beginning of the year and consisted of a 6-mile 4-inch line built by the Texas Production Co. from the Iles Dome to a connection with its 16-mile line from Hamilton to Craig where the Texas company has a refinery, loading racks and a tank farm, and a 16-mile 4-inch line from Hamilton to Craig built by the Midwest Refining Co. The last named connected with a line from Iles to Hamilton previously built by the Midwest. These two gaps gave both the Texas and Midwest companies their own 4-inch line from Iles to Craig, the Texas company's line also taking care of its production from the Moffat Dome.

In Wyoming, the Midwest Refining Co. completed and put into operation in 1928 a 38-mile 4-inch line from the La Barge Field in Sublet County in the southwestern part of the State, to the town of Opal on the Oregon Short Line Railroad. The system included two booster stations, a 55,000-bbl. storage tank at Opal, and loading racks. It also included a heating plant which made possible the running of oil during the cold winter weather. This line transports the oil produced by the California Petroleum Corp., which is under contract to the Utah Oil Refining Co. for its plant at Salt Lake City, and several of the independent operators who sell to California Petroleum. The only other construction in Wyoming was the extension of the Illinois Pipe Line Co.'s 15-mile 8-inch line from the Oregon Basin Field to Cody from its field terminal on the north dome to the south dome which made it possible to take care of all of the present production from both structures by gravity flow and to take care of much future development.

New Lines in Montana

The only oil pipe line completed in Montana during the year was the Thurber Oil Co.'s 4-inch line from the new Pondera Field in northern Montana to the town of Conrad on the Great Northern Railway. The Thurber Oil Co. is a subsidiary of the Texas Pacific Coal & Oil Co., a major operator in the Pondera Field. This line is 8 miles long, terminating at the Texas Pacific tank fa... Work on the line was started about J... 1 and the line was in full operation ... September.

In December work was begun on ... second line from the Pondera Field. T... Pondera Pipe Line Co., organized ... the Continental Development Co., ... Rice interests, and other independent ... erators in the Pondera Field, is lay... the line which will also terminate ... the Great Northern line near Con... This line should be completed by March ...

Early in the fall the California P... troleum Corp. was reported to be wo... ing out a right of way for a line fr... the Pondera Field, but nothing has be... done in the way of construction.

Following the opening of the Ban... tyne Field, the Genou Pipe Line Co. w... organized by the Craig, Speer and M... Cutcheon interests which control th... Genou Oil & Gas Co. to lay a line fro... Bannatyne to the town of Colline, ... miles distant. The right of way was s... cured but no work on the line had be... started at the end of the year.

Californians Prepared for 1929

There was no major pipe line construction undertaken in California during 1928, although several laterals and minor gathering lines were added to existing facilities. Deep zone exploitation at Santa Fe Springs resulted in the laying of several lines out of that field late in the year in order to take care of anticipated flush production expected to result during 1929. Santa Fe Springs had complete coverage previous to the inauguration of existing development work but many of these lines were taken up after the flush period of flush production and transferred into other areas when production reached the settled stage. As a result of this condition several companies found it necessary during the latter part of 1928 to replace the facilities which were retired at a time when the possibility of deep-zone development at Santa Fe Springs was not recognized. Short lines were also laid out of the Potrero and Lawndale fields during 1928, but this was of minor consequence as they merely augmented existing facilities.

The General Petroleum laid a 15-mile 6-inch welded line from the Rincon Field to its tank farm in the Ventura Avenue Field in order to facilitate shipments of Rincon crude which previously had been moved in tank cars. The General Petroleum also added 15 miles to its pipe line facilities in the San Joaquin Valley by extending a 6-inch lateral from the Young lease on the West Front of the Kern River Field up into the Mount Poso Field, but this installation was not entirely finished as an extension of time was granted by property owners from whom the company is leasing acreage. Work was started late in the year by the General Petroleum Co. on a 6-inch crude oil line extending from Lost Hills to the recently discovered Kettleman Hills Field of Kings County, a distance of approximately 20 miles, and this project is now in active operation.

Gulf Coast New Lines

In the Gulf Coast, The Texas Company started late in 1928 laying a 10-inch additional loop on its system from Humble to Port Arthur, a distance of approximately 70 miles. This line, which still is under construction, will be a part of the company's new West Texas line being laid to the Gulf, making connection at Humble.

This company also is laying a line through East Central Texas an 8-inch project extending from Corsicana on its Dallas-Humble-Port Arthur system to San Augustine on its North Louisiana-Port Arthur line. This line is being laid to divert some of the crude from the overloaded Dallas system to the North

Louisiana line which is running far below capacity. This line is approximately 115 miles long.

Other lines laid in the Gulf Coast and East Central Texas, excluding those trunk lines ending at the coast but originating in other districts, were confined to branches to new fields and small field lines.

Following the opening of the new De-Walt Field in Fort Bend County early in the year by the Humble Oil & Refining Co., the Humble Pipe Line Co. laid an 8-inch line from the field to Pierce Junction, a distance of 15 miles, where it connected with the company's main line.

Line to Raccoon Bend

Humble Pipe Line Co. the latter part of the year completed an 8-inch line from the Satsuma station on its main system to the new Raccoon Bend district of Austin County, a distance of 32 miles, and in East Central Texas, this company is laying another 8-inch line from the Boggy Creek Field to Groesbeck where it joins the main line from the Corsicana district to the coast. The latter line is 70 miles long. This is in addition to a 5-mile 6-inch line from Boggy Creek to loading racks at Frys Gap. The latter was laid to handle the earlier output of the field but when production increased to major proportions a greater outlet was necessitated.

Sun Pipe Line Co. has just completed laying a small line from its recently opened Gay Hill Dome Field of Washington County to loading rack at the town of Gay Hill. Early in the year Sinclair Pipe Line Co. laid a 4-inch branch from its trunk line to Blue Ridge. The latter necessitated the laying of only approximately a mile of pipe. Although Sinclair's main line from Damon Mound to Houston passes within a mile of Blue Ridge no connection previous had been made to that field.

Gulf Pipe Line Co. last spring following the opening of Sorrento Field in Assension Parish by the Gulf Refining Co. furnished an outlet by laying a small field line to the station of McElroy and erected loading racks there. That line is only 1½ miles in length.

Pipe Line Building in Central West

The construction of main pipe lines reported during 1928 in the Central West fields, the Kentucky-Tennessee fields and the Michigan Field, according to reports covered but few miles, but the installing of gathering lines run up into the hundreds of miles.

The Buckeye Pipe Line Co. put in about 20 miles of line which connected up the loop, near the Station 8, south of Cygnet, in Wood County, to the line running to Toledo, to supply crude to the Standard Oil Co. of Ohio plant, the Paragon Refining Co., Sun Oil Co. and the Craig Refining plants, which gives the line a handling capacity of 35,000 bbls. daily from Cygnet to Toledo.

In the Midland-Isabelle County fields of Michigan, the Pure Oil Co. put in a 10-mile line from the producing wells along the line of both counties to a railroad siding at Mount Pleasant where the oil is loaded into tank cars for shipment. In the Muskegon, Mich., field several miles of main line was put in by the Dixie Oil Co. the fore part of the year and about 15 miles additional, not including the gathering lines to close around 100 wells. One line is just being finished, a 4-inch to connect up the big wells founds in the Laketon Township area of that county. The Dixie Oil Co. is shipping the Muskegon crude to the refineries of the Standard of Indiana at Milwaukee, near Saginaw, Mich.

New Lines in Kentucky

The Illinois Pipe Line Co. work during the year has been mostly in the connecting of new producing areas throughout the western Kentucky producing properties. This company, it is estimated, has put in close to 300 miles of gathering lines connecting up production in Ohio, Daviess, McLean and Hancock Counties, also in Allen and Warren Counties, to its main trunk line running from near the Tennessee line through Kentucky, thence through to Doyle Station near Owensboro, then through Indiana to Lawrenceville, Ill. All production worth while has been connected up and taken care of by the Illinois company.

The Producers Pipe Line Co.'s line, starting near Taffy in Ohio County, Kentucky, and running through the northern part of the county and through Daviess County to the Ohio River a short distance east of Owensboro, Ky., consists of about 22 miles of main line, and many miles of gathering lines. This company also connected up the Red Hill district in Daviess County, with its main line adding an additional 20 miles of line for this company.

The Paragon Refining Co. during the year installed about 20 miles of gathering lines in the Glasgow Field of Barren County, Kentucky, and 5 miles of line in Clay County, Tennessee, in connecting up the Stamps and other leases in the Asburn Creek area of Clay County.

Eastern Pipe Lines

There was very little pipe line construction in the Eastern Field during the year. The most important transaction was the Standard Oil subsidiaries taking over the Pure Oil Co.'s pipe line system in Pennsylvania, West Virginia and southeastern Ohio. The National Transit Co. took over all north of Allegheny County, the Southwest Pennsylvania Pipe Line all between Allegheny County to the north and as far south as West Virginia. The Eureka Pipe Line Co. acquired the Pure's West Virginia lines, except for a couple of counties in the south. The Buckeye Pipe Line Co., Macksburg division, took over the system in Southeast Ohio.

The aggregate consideration paid by the various companies was not made public but was thought to be a little less than $2,000,000.

GULF COAST MARKET LUBRICANTS WEAKER

HOUSTON, Tex., Jan. 22.—A generally weaker tone was reflected in the Gulf Coast lubricating oil market Tuesday influenced to some extent by the reduction in Coastal oils Saturday. Sellers on the whole were attempting to maintain a steady price structure but it was evident that nearly all were keeping business only by meeting competition and actual sales were made at prices from an eighth to a quarter cent below posted figures.

Spot sales continued only fair during the week and were not sufficient to move the daily output which has been kept at a comparatively high mark. Fuel oils and gas oils were unchanged during the week.

MESSER CORPORATION COMBINES PROPERTIES

OLEAN, N. Y., Jan. 26.—Oil properties formerly owned and operated by six different corporations in the Allegany and Bradford Fields have been combined to form one of the largest oil companies in this field.

Properties covering 3,500 acres, located in Allegany County, New York, and McKean County, Pennsylvania, have been acquired by the Messer Oil Corp., organized for that purpose. The properties have a daily total production of 1,400 bbls. from 600 wells.

Officers of the new company are A. E. Yahn, president; John Messer, vice president and general manager; Joseph G. Fisher, vice president and treasurer, and Edward L. Letchworth, secretary.

DEATH OF A. B. BROOKS

SAN FRANCISCO, Calif., Jan. 26.—Alpheus Baxter Brooks, retired director of the Standard Oil Co. of California, died after an extended illness at the Dante Sanitarium, San Francisco. He was born at New Bedford, Mass., in 1869. As a lad of 15 he came to California, sailing before the mast of a whaler. The whaling vessel was operated for the Arctic Oil Works in those days when whale oil was used for illumination and other purposes now fulfilled by products of petroleum. In a short time he was transferred to shore and as a laborer worked about the docks and later the oil works, subsequently advancing to assistant foreman, foreman and assistant superintendent. In 1902 the Arctic Oil Works was sold to the Standard Oil Co. and Mr. Brooks was transferred to Richmond, Calif., where he supervised the building of a whale-oil plant, later becoming superintendent. He held important positions in the Richmond Refinery, in 1906 being appointed purchasing agent. He was elected a director January 10, 1922, and retired in January, 1926.

GULF COAST PORT SHIPMENTS SHOW INCREASE IN DECEMBER

HOUSTON, Tex., Jan. 26.—Movements of crude and refinery products from Gulf Coast ports during December totaled 18,475,169.85 bbls., an increase of 758,461.87 bbls. over those of November. Of this total lifted during December, 11,248,115.28 bbls. were refinery products and 7,227,054.57 bbls. crude. Water shipments by companies and ports were:

	Coastwise refined		Export refined	
Company and port—	Nov.—Bbls.	Dec.—Bbls.	Nov.—Bbls.	Dec.—Bbls.
Standard of Louisiana, Baton Rouge	628,536.00	1,111,876.00	1,201,418.00	869,387.00
The Texas Company, Port Arthur	1,068,278.00	1,120,629.00	403,630.00	243,851.00
Gulf Refining Co., Port Arthur	2,886,212.71	2,696,328.85	180,409.11	51,523.38
Magnolia Petroleum Co., Beaumont	1,212,679.83	1,085,293.61	*	*
Humble Oil & Refg. Co., Baytown	1,575,099.75	1,883,477.23	1,668,288.42	1,544,398.58
Atlantic Oil Prod. Co., Atreco	118,799.12	90,827.77	.....	.....
Pure Oil Co., Smiths Bluff	422,991.67	550,522.86	.....	.....
Total	7,912,597.08	8,538,955.32	3,453,745.53	2,709,159.96

	Coastwise crude		Export crude	
Company and port—	Nov.—Bbls.	Dec.—Bbls.	Nov.—Bbls.	Dec.—Bbls.
Standard of Louisiana, Baton Rouge	549,118.00	281,654.00	53,333.00	53,122.00
The Texas Company, Port Arthur	.....	95,377.00	.....	6,862.00
Gulf Refining Co., Port Arthur	235,341.88	239,696.03	.....	.....
Magnolia Petroleum Co., Beaumont	473,894.86	745,592.07	*	*
Humble Oil & Refg. Co.—				
Texas City	620,921.00	950,432.00	.....	.....
Ingleside	67,081.00	100,655.00	.....	.....
Baytown	355,988.00	548,054.00	.....	.....
Neches	73,035.00	.....	.....	.....
Harbor Island	1,948,715.00	1,864,658.00	.....	193,339.00
Atlantic Oil Prod. Co.—				
Atreco	691,972.91	718,825.15	.....	.....
Beaumont	369,726.41	381,792.29	.....	.....
Pure Oil Co., Smiths Bluff	381,494.31	429,151.03	.....	.....
Sun Oil Co., Sabine Pass	529,744.00	617,845.00	.....	.....
Total	6,297,032.37	6,973,731.57	53,333.00	253,323.00

*Magnolia Petroleum Co. makes no distinction in reports between coastwise and export shipments.

Late Fields

(Continued from Page 62)

the Sun Oil Co. The two other wells, Nos. 1 and 2 G. W. Grote, Tuesday were allowed to flow at the rate of 1,434 bbls. daily, pinched in. No. 2 originally came in for 4,200 bbls. but both have been shut in until now. Since opened they are showing 8 per cent b.s. and water.

A. W. THOMPSON RESIGNS

On the ground that his continued ill health does not warrant his again undertaking the arduous duties which the administration of the office involves, Arthur W. Thompson has presented to the executive committee his resignation as president of the United Gas Improvement Co.

HENRY IN TULSA FOR OAKITE

Richard Henry has been appointed Tulsa representative of Oakite Products, Inc., New York, and will have charge of Oakite sales and service in the eastern half of Oklahoma. V. D. Smith of the New York office, who has been located in Tulsa pending the appointment of the new representative, now goes to Oklahoma City to take charge of that office temporarily.

SECURITIES REFLECT CRUDE REDUCTION

(Continued from Page 249)

dent; Allan T. Towl, vice president and general manager; H. C. Dorworth, vice president; J. M. Tussey, treasurer; V. S. Swisher, secretary; J. M. Tussey, assistant secretary; V. S. Swisher, assistant treasurer; E. A. Whipple, assistant secretary and assistant treasurer; E. W. Ziegler, assistant secretary and assistant treasurer; G. W. Williams, assistant secretary; W. R. Daugherty, general auditor; H. C. Dorworth, solicitor; T. C. Towl, superintendent; W. H. Fisher, assistant superintendent.

OIL BONDS ON THE NEW YORK CURB
Quotations Compiled by Francis, Bro. & Co., Members New York Stock Exchange, Kennedy Bldg., Tulsa, Okla.

					For week ended Jan. 18—			
	Company—	Date	Pct.	Int.	Sales	High	Low	Close
11,603,000	American Nat. Gas. Co.	Oct. 1942	6½	A&O	No sales.			
3,000,000	Beacon Oil Co.	Nov. 1936	6	M&N	19,800	116⅞	115½	115
18,900,000	Cities Service deb.	Jan. 1966	6	M&N	No sales.			
15,000,000	Cities Serv. refunding deb.	Jan. 1966	5	M&S	18,600	90¾	89½	90¼
24,843,700	Cities Service Gas Co.	May 1942	5½	M&N	9,400	91½	90	90
12,000,000	Cities Service Gas P. L. Co.	Jan. 1943	6	J&J	8,800	98¼	97½	97½
12,000,000	Continental Oil Co.	Nov. 1937	5½	M&N	4,000	96½	94¾	95
3,000,000	Dixie Gulf Gas Co. A	Sept. 1937	6½	M&S	4,800	87⅝	87	87⅛
18,000,000	Empire Oil & Ref. Co.	Apr. 1942	5½	A&O	5,500	90½	90	90
3,877,100	Galena Signal Oil Co.	Apr. 1930	7	A&O	1,800	100⅞	100⅝	100⅝
30,904,000	Gulf Oil of Pa.	Dec. 1937	5	J&D	2,900	100½	100⅛	100⅛
12,000,000	Gulf Oil of Pa. debs.	Feb. 1947	5	F&A	8,300	101¼	100⅝	101¼
4,000,000	Houston Gulf Gas	Apr. 1943	6	A&O	3,800	92	90	90
4,000,000	Houston Gulf Gas	Apr. 1943	6½	A&O	5,200	91½	90¼	90¼
6,339,000	Independent Oil & Gas	Mar. 1939	6	M&S	27,000	109⅝	106⅝	107
15,000,000	Lone Star Gas Co.	May 1942	6	M&N	3,000	99¼	98¾	98¾
14,650,000	Richfield Oil Co.	Sept. 1941	6	M&S	200	113⅝	113½	113½
1,427,000	Richfield Oil Co.	Jan. 1931	5½	J&D	1,500	101½	100⅛	100⅝
9,733,000	Sun Oil Co.	1939	5½	M&S	3,800	102	100½	102
4,000,000	Transcontinental Oil Co.	Apr. 1930	7	A&O	No sales.			
2,500,000	Warner-Quinlan Oil Co.	1942	6	A&O	No sales.			

DOMESTIC EXPORTS OF PETROLEUM, REFINED PRODUCTS

	Month of Dec.		12 mos. ended Dec.	
Petroleum—	1927	1928	1927	1928
Crude, bbls.	1,717,307	1,528,968	15,843,405	18,961,362
	$ 2,956,798	2,105,437	25,944,489	26,786,248
Total refined petroleum, bbls.	8,450,761	8,952,352	115,398,860	126,186,841
	$29,927,008	33,303,649	429,663,342	464,899,317
Gasoline, naphtha other light products, bbls.	3,026,732	2,674,806	43,334,164	51,756,533
	$13,484,352	17,246,455	209,838,685	231,969,946
Oils—				
Illuminating, bbls.	1,243,371	1,229,422	19,352,102	21,852,626
	$ 5,255,589	5,580,028	79,303,008	93,477,916
Gas and fuel, bbls.	3,402,632	3,171,040	42,963,180	41,558,367
	$ 3,798,897	3,475,537	49,801,802	45,797,151
Lubricating, bbls.	769,114	866,029	9,605,757	10,849,541
	$ 7,265,875	6,859,085	88,843,128	91,591,415
Other refined petroleum, bbls.	8,912	11,055	143,657	169,774
	$ 122,295	142,544	1,876,719	2,062,889
Paraffin wax, pounds	30,668,757	26,600,116	340,422,834	392,648,443
	$ 1,228,506	1,390,179	15,034,424	16,863,258

PATRICK CARBON
for Diamond Core Drilling

"Specify Patrick Carbon"

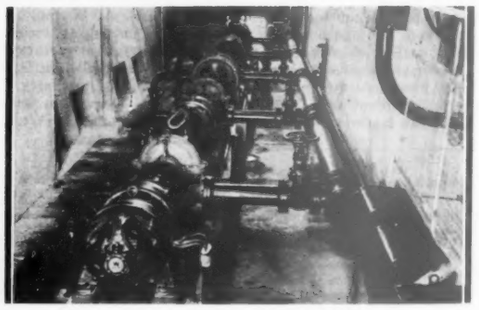
THERE is *one* best grade for every drilling need. Its use means carbon *economy.*

Tell us about your drilling problems and we will give you carbon facts of real value to you.

Our new booklet, "HOW TO CUT CARBON COSTS," just off the press, mailed on request.

R. S. PATRICK
Duluth, Minnesota, U.S.A.
Cable Address, "Exploring" Duluth

Over 200,000 [AMERICAN-MARSH] in Service



ALL TYPES

FOR over forty years this organization has built pumps and pumps only. They are not a side issue with us—but the main line. We make completely in our modern plants every type of centrifugal, steam and power driven pump, which has met the test of dependable, low-cost service, and which has received the endorsement of engineers generally. Write for American-Marsh Bulletins.

AMERICAN STEAM PUMP COMPANY
BATTLE CREEK, MICHIGAN

AMERICAN-MARSH
Centrifugal and Steam Pumps

CRUDE VALUES CUT $222,000 PER DAY

(Continued from Page 57)

Wheeler and Potter Counties averages 37 gravity. The loss to Panhandle producers is approximately $7,620 per day.

Gulf Coast Grade B crude was reduced 10 cents per barrel. The cut affected 82,500 bbls. of production and meant a loss in value of $8,250 per day.

The loss to Rocky Mountain producers and owners of royalty approximated $6,635.40 per day, Salt Creek suffering the most severely, the value of the production there having been lowered $5,760 per day, based on the production on January 25.

In the Central West area 33,800 bbls. of production was reduced 10 cents per barrel, lowering the value $3,380 per day.

The crude produced in the Chalk Field in Howard County was given a 15-cent cut putting it on the same price basis as Winkler and Pecos County crude, 65 cents per barrel.

The reduction in Louisiana and Arkansas will average 20 cents per barrel and the 21,000 bbls. production affected by the drop in price was reduced $4,100 in value. The El Dorado, Arkansas, Field and the Caddo, Bull Bayou, Crichton, DeSoto, Haynesville, Homer and Cotton Valley, light crudes, were affected.

The total loss in gross revenue to producers and royalty owners by reason of the crude reduction was approximately $222,000, divided as follows:

Oklahoma	$140,814
Kansas	17,619
North Central Texas	28,787
Texas Panhandle	7,620
Howard County, Texas	5,850
Gulf Coast	8,250
Louisiana-Arkansas	4,100
Rocky Mountain	5,760
Central West	3,380
Total reduction in value	$222,180

OPPOSE COMMISSION HAVING MORE POWER

(Continued from Page 56)

338 as now written and as now before the House Committee, said Subdivision J of said proposed bill reading as follows:

"'Upon its own motion or upon the petition of a majority of the operators or the operator or operators owning a majority of the acreage in the same oil or gas pool or in an area that appears from geological or other data to be underlain by a common accumulation of oil or gas or both, to make and enforce orders binding alike upon the operators and royalty owners in said pool or area for the orderly development and operation of the separate holdings therein with a view to the prevention of waste and the furtherance of conservation in accordance with a program thereby established adjusting and regulating the exercise of the correlative rights and obligations of the operators and royalty owners therein that arise out of the nature and habits of oil and gas underground. This provision shall be cumulative of all other provisions of this act and of the conservation laws of this State.'"

PETROLEUM COMPANIES CONSOLIDATE RADIO

(Continued from Page 56)

erating licenses are pending and the three stations for which applications for construction permits are pending be licensed to use any or all of the frequencies requested. In connection with this application John H. Kane submitted an application as counsel for the Phillips Petroleum Co. stating that he is one of the directors of the Petroleum Communications Co. and that the individual applicant companies joining in the formation of the Communications company have been engaged in point to point communication by radio in the Mid-Continent and southwestern territory for several years. Heretofore, he stated, the messages transmitted have been confined to those relating to the business of the licensee companies themselves, although not infrequently messages have been transmitted for the public without m ing a charge for such service. For t purpose of unifying this service and m ing it available for the public generl a single public service company has b organized to take over and operate of the stations.

Stock Subscribed

Mr. Kane stated that the capital sto of this Communications company consi of 5,000 shares of stock without nomin or par value, all of which has been su scribed in equal shares by the Phill Petroleum Co., the Marland Oil Co., a the Skelly Oil Co. These three comp nies have agreed to adequately finan the Petroleum Communications Co., em ploy efficient personnel and purcha such additional equipment as may be ne essary to render the best possible com munication service.

The certificate of incorporation of th Petroleum Communications Co. is signe by E. E. Craig, A. L. Raughley, an M. S. Cook. It will generally do fo profit a general wireless or wire tele graph and wireless or wire telephon business for itself and for others. It ma maintain offices and carry on its op erations anywhere.

W. B. SEARS KILLED

Struck by a pitman rod as it brok from a flywheel on a drilling rig, Willia B. Sears, 41 years old, Holdenville, wa killed at Earlsboro, Okla. He was a sistant superintendent of the Oklahom Pipe Line Co. He formerly held a sim ilar position at Drumright.

KETTLEMAN HILLS ROYALTY OIL

WASHINGTON, D. C., Jan. 26.—Th Secretary of the Interior has issued a ca for bids for the sale of the royalty o accruing to the United States from lease on government land in the Kettle man Hill oil field, California, for a pe riod of one year, beginning April 1, 192

LEGAL

DEPARTMENT OF THE INTERIOR
Call for Bids

To Purchase Government Royalty Oil from SE¼, Sec. 2, T. 22s, R. 17e, M. D. M., Kettleman Hills Oil Field, California (Milham Exploration Company).

Pursuant to the provisions of Section 1 of the act of Congress approved Februar 25, 1920 (41 Stat., 437), sealed proposals i duplicate will be received in the office o the Secretary of the Interior, Interior De partment Building, Washington, D. C., on or before noon of March 1, 1929, from re sponsible bidders for the purchase for a period of one year beginning April 1, 1929, of royalty oil accruing to the United States (at present from one well) from the SE¼, Sec. 2, T. 22 S., R. 17 E., M.D.M., in the Kettleman Hills Oil Field, California, held by the Milham Exploration Company. The approximate quality of the oil to be sold is indicated by the following results ob tained from a laboratory test: gravity, about 59 degrees A.P.I.; 59 per cent gaso line stock (437° F.); 8 per cent kerosene and fuel oil; 3 per cent distillation loss. The Government's royalty oil amounts to approximately 200 barrels a day and will probably suffer gradual decline until ad ditional producing wells are drilled upon the tract. Bids must be based upon the highest posted field price for oil of 25.0 to 25.9 A.P.I. gravity in the Midway-Sunset field, California, and must be stated as a dif ferential in cents per barrel from such posted price. Delivery of royalty oil will be made without cost to the Government on the said SE¼, Sec. 2, for the account of the successful bidder by segregation in royalty tanks or by direct pipe line run as an undivided portion of production as the Government may elect. Payments for the royalty oil are to be made to the Register of the United States Land Office at Sacramento, California, on or before the fifteenth (15th) day of each month following that in which delivery is made, the quantity of the oil to be determined by tank measurement corrected for impurities found by test and the volume computed in terms of standard barrels at 60° F. Each bid must be accompanied by a certified check payable to the order of the Secretary of the Interior, in the sum of $1,000 as a guarantee that the bidder will, if successful, promptly execute a satisfactory contract and furnish a bond in the sum of $40,000 conditioned upon full and complete compliance with the terms of the contract. The Secretary of the Interior may accept any bid which in his judgment is most advantageous to the Government, and reserves the right to reject all bids. Sealed bids are to be submitted to the Secretary, Department of the Interior, Washington, D. C., the envelope to be marked plainly, "Bid on Kettleman Hills royalty oil." No bid received after the time herein fixed for submitting bids will be considered. Additional information can be obtained from the Geological Survey, Department of the Interior, Washington, D. C., or from the field office of the Geological Survey at Taft, California.

(Sgd.) ROY O. WEST.
Secretary of the Interior.

January 24, 1929.

QUALITY — QUANTITY — SERVICE

TAUBMAN SUPPLY CORPORATION

ANNOUNCES

PURCHASE of Marland Production Company's entire surplus stock of used casing, tubing and line pipe, located in Kansas, Oklahoma and Texas, all ready for immediate shipment.

THROUGH the addition of Marland's large stocks of quality casing, tubing and line pipe to our own stocks of dependable tubular products—this gives us a combined stock of approximately *$600,000.00;* ranging in sizes 1″ to 20″ inclusive, located in the heart of every Mid-Continent Field.

ECONOMICAL operations are always important and with the present low price of crude oil, makes economy more urgent.

TAUBMAN Supply Corporation's policy of *Quality, Quantity* and *Service* at a reasonable price has long proven to our Trade the truth of our contentions, and with this great purchase, we are in position to effect even greater economy on your immediate requirements by shipping direct from Marland Warehouses to your operations, Thus saving the freight and handling to our own stocks.

Location Marland Stocks	*Location Taubman Branches*
Winfield, Kansas	Wichita Heights, Kansas
Ponca City, Oklahoma	Tulsa, Oklahoma
Tonkawa, Oklahoma	Oklahoma City, Oklahoma
Blackwell, Oklahoma	Seminole, Oklahoma
Quay, Oklahoma	Maud, Oklahoma
Borger, Texas	Wink, Texas
McCamey, Texas	Borger, Texas
Big Spring, Texas	

OUR Branch Managers have all information on prices and quantity on casing, tubing and line pipe located at their respective Districts, both the Marland purchase and stocks at our Branches.

CALL, wire or write Taubman Supply Corporation, General Office, Tulsa, Oklahoma, or your nearest Branch. All our Field Branches are maintaining *TWENTY-FOUR HOUR SERVICE.*

We do not sell thru brokers.

TAUBMAN SUPPLY CORPORATION

General Offices: Midco Building
TULSA, OKLAHOMA
District Sales Offices:
DALLAS, FORT WORTH

Of Interest to Sales Departments

November Gasoline Consumption Shows 8.7 Per Cent Gain

Gasoline consumption in United States based on gasoline tax reports for November as compiled by the American Petroleum Institute showed an increase of 8.7 per cent over same month of the previous year. The seasonal decline in consumption is reflected in a 11.1 per cent decrease when the November rate of consumption is compared to October.

Of the 35 states listed in the report only 6 states failed to show an increase in consumption in November, 1928, over November, 1927. Colorado, Florida, Indiana, Iowa, Nebraska and West Virginia showed small decreases.

For the 11 months ending November 30, 1928, these 35 states had an increase of 11.1 per cent over the same period in 1927. The following table gives the November consumption by states for the two years:

Gasoline Consumption by States, November, 1928

(Figures given in thousands of gallons)

	Month of— Nov., 1928 gallons	Nov., 1927 gallons
Alabama	14.341	13,358
Arizona	5.104	4,321
Arkansas	10.815	9,170
Colorado	10.279	10,352
Delaware	2,343	2,167
Florida	18,237	19,398
Georgia	17,754	17,250
Idaho	4,149	3,565
Indiana	31,292	33,738
Iowa	22,351	25,432
Kansas	22,072	21,512
Louisiana	14,959	13,414
Maine	6,573	6,282
Michigan	57,182	37,216
Minnesota	26,015	24,888
Missouri	28,398	27,767
Nebraska	13,406	14,478
Nevada	1,158	1,018
New Mexico	3,271	2,847
North Carolina	21,196	21,053
North Dakota	6,563	5,941
Ohio	71,338	62,722
Oklahoma	24,675	21,228
Oregon	10,887	10,291
Rhode Island	5,304	4,984
South Carolina	10,139	9,665
South Dakota	7,667	7,403
Tennessee	14,206	12,932
Texas	58,613	54,131
Utah	3,498	3,227
Virginia	15,951	14,405
Washington	17,668	16,252
West Virginia	8,408	9,076
Wisconsin	30,860	26,000
Wyoming	2,159	1,754
Total	618,831	569,237
Daily average	20,628	18,975
Increase over previous year:		
Amount	49,594	
Percentage	8.7%	

GASOLINE IMPORTS INTO GREAT BRITAIN LARGER

NEW YORK, Jan. 26.—Imports of crude and refined petroleum into Great Britain for the first 10 months of 1928 aggregated 2,177,094,234 U. S. gallons, against 2,110,378,638 gallons in the corresponding period in 1927 and 1,898,333,605 gallons in the first 10 months of 1926.

Refined petroleum imports for the first 10 months last year totaled 1,653,043,701 gallons, of which 748,430,908 gallons were gasoline, as compared with 1,400,826,658 gallons of refined products, including 544,292,333 gallons of gasoline, in the same months of 1927.

Crude petroleum imports into Great Britain for the first 10 months of 1928 were 524,050,533 gallons, as compared with 709,551,980 gallons in the same period in 1927 and 549,196,171 gallons during the first 10 months of 1927. Crude imports were sharply curtailed during 1928, owing to the fact that refined products were priced so low in the United States and Russian markets that it was cheaper for British marketers to import the refined oils than to run their own refineries in most cases.

AIRPLANE HELPS IN THE SALE OF GASOLINE AND CREATES GOOD WILL

HOUSTON, Tex., Jan. 26.—Sales promotion programs in which airplanes have been utilized to increase volume of business and to create good will have been carried out effectively by The Texas Company and Deepwater Oil Refineries, Inc., both of Houston, the past year. What was done by The Texas Company and by Deepwater Oil Refineries, Inc., is believed to have opened a new field for exploitation of the airplane by oil companies.

Although no definite figures are available to indicate the value of the airplane to the two companies in their sales campaigns it was noted that there was a marked increase in sales at points where the airplane was taken in carrying out organized programs. There is no way of estimating the good will created.

The Texas Company, to carry on its marketing sales program, purchased a trimotored Ford airplane a year ago and since then the plane has been sent to principal points in virtually every state in the Union. The airplane is more or less an emissary of good will, and its visits attract attention, enabling the representatives of the company with the plane to carry on their sales program more effectively.

The plan as carried out by The Texas Company is for representatives of the sales department to visit all the principal points of distribution in the country, spending several days, or such a time as designated by schedule at each. At each place, these sales representatives utilize their plane in giving city officials, members of the chambers of commerce, and other organizations air trips over the city and surrounding country.

These flights serve many purposes. Those taking the trip come in closer contact with the company and are made acquainted in a novel and convincing way with the company's products. The contact established is made more lasting by the unusual character of the visit and by what for many is the first airplane ride. In addition, the plane itself in flight over the various cities and towns is an advertising medium.

The plan of Deepwater Oil Refineries, Inc., while not conducted on a nation-wide scale, was similar. It was conducted more as an experiment and was confined to a few points in Texas, Oklahoma and Kansas, and a leased plane was used.

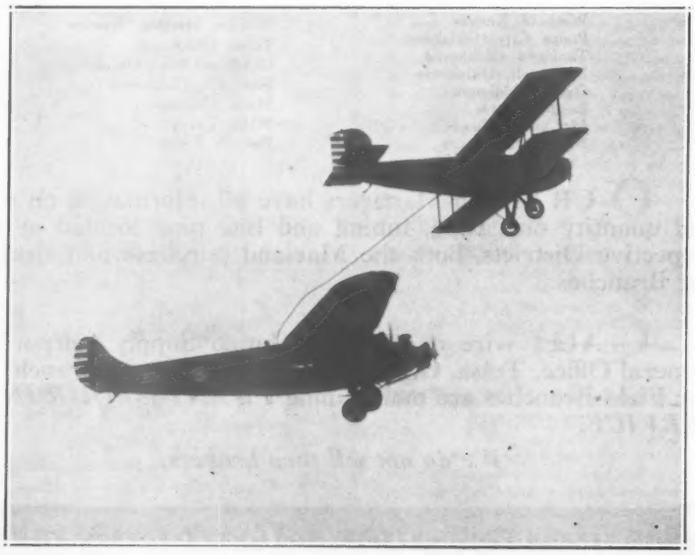
PLAN GRADUATED TAX BASED ON RETAIL PRICE

Something new in gasoline taxes and the regulation of filling stations is suggested in bills introduced in the Texas Legislature now in session. The bills propose to have a graduated gasoline tax based on the price to the consumer and number of filling stations will be based on the population.

Under the measure the tax would start at 4 cents a gallon when the price is 15 cents, including the tax. This last is a specific provision of the bill. It is provided that the tax must be paid out of the price charged the public, that is, in-

(Continued on Page 293)

NEW TYPE OF FILLING STATION



The above picture shows the army monoplane (Fokker) Question Mark being refueled in its record-breaking continuous flight of 150 hours, 40 minutes and 15 seconds. In this flight it was necessary to refuel the Question Mark 37 times, delivering a total of 5,205 gallons of gasoline and 262 gallons of oil. It is estimated that the plane flew 11,000 miles during the flight.

As shown in the picture the Question Mark in refueling, flew underneath the fueling plane, a distance of 10 to 20 feet being maintained. A rubber hose from the upper plane connects to the funnel of the lower plane. The two planes then fly in a straight course. The refueling takes place at the rate of 75 gallons a minute. The lubricating oil is delivered in 5-gallon containers.

During the flight the refueling operation took place under varying weather conditions. As the result of the experience with the Question Mark hose connections in the future will be up to 100 feet instead of 20 feet.

May Use Fuel Oil As Motor Fuel in Bus Transportation

PHILADELPHIA, Pa., Jan. 26.—The use of gasoline as a motor fuel may be eliminated this year by the 600 interurban buses and 3,000 taxicabs making up the fleet of the Mitten Management, which owns the street transportation system in this city. J. A. Queeney, vice president of the Mitten Management, speaking before a technical audience made up of representatives of transit companies from other cities, outlined the successful experiments which his organization has undertaken in the use of fuel oil for its automotive fleet, and predicted the saving of millions of dollars. The use of the heavier oil is made possible, Mr. Queeney said, by a gas generating device which his organization has perfected.

Entirely aside from the economies effected through the use of fuel oil as a motor fuel, in place of gasoline, is the fact that the carbon monoxide given off by all motors through their smoke exhaust pipes can be virtually eliminated. Through the experiments conducted by his organization, Mr. Queeney declared, a way has been found to use fuel oil in an automotive engine with the same effectiveness as gasoline; and not only this, but to change from one to the other at

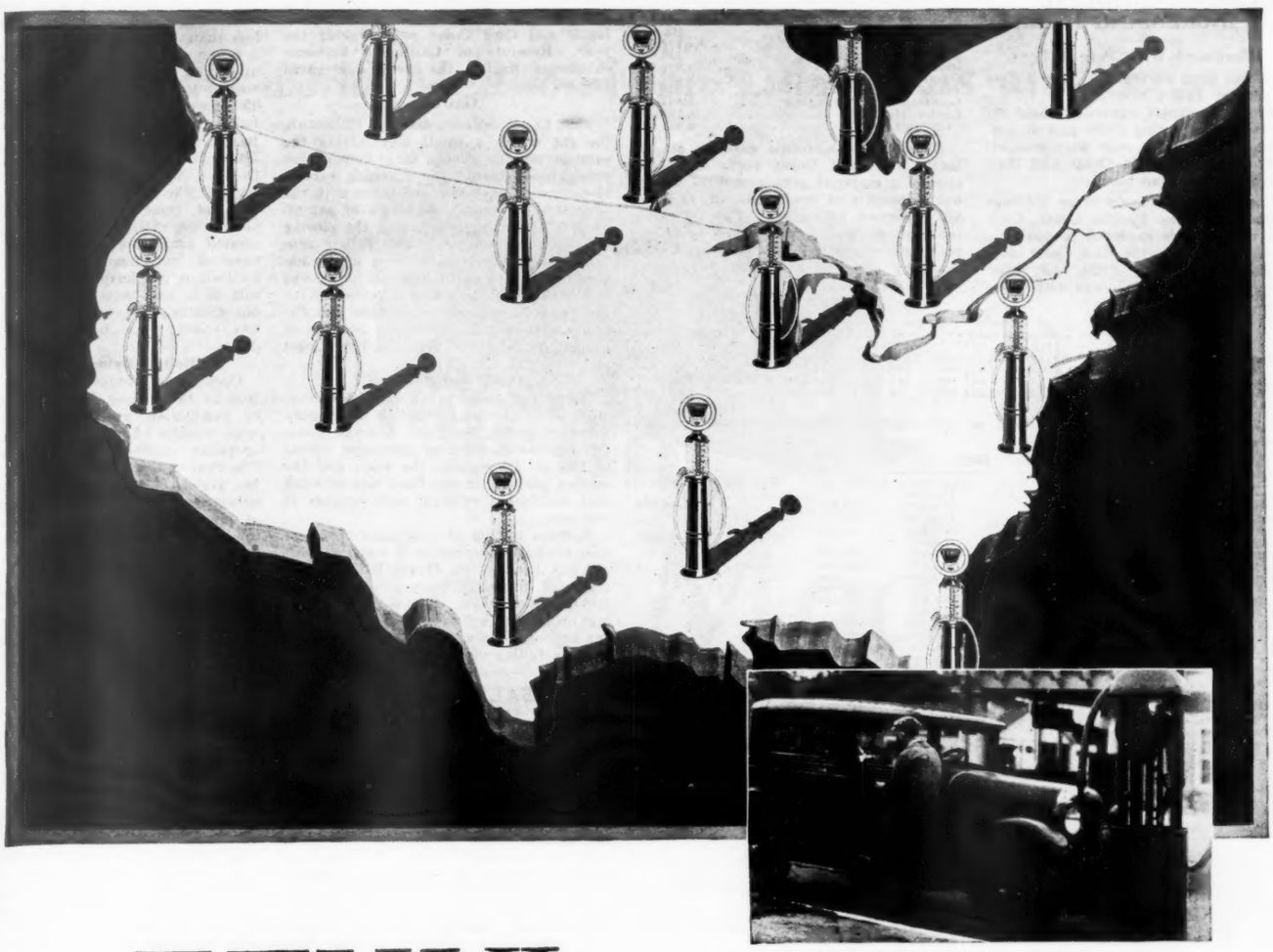
(Continued on Page 293)

SYRIAN GASOLINE DEMAND SHOWS STEADY INCREASE

The territory in Syria under the French mandate now consumes about 5,000,000 gallons of gasoline and 10,000,000 gallons of kerosene annually. The Lebanese Republic takes 60 per cent of the gasoline and 40 per cent of the kerosene, the State of Syria 38 per cent of the gasoline and 57 per cent of the kerosene; the remainder goes to the State of the Alaouites. This distribution is due to the fact that the Lebanon is more advanced in the use of both automobiles and electricity. As the sale of automobiles is steadily increasing, sales of gasoline may be expected to increase hereafter in greater proportion than sales of kerosene, which may even decrease with the extension of electric systems.

Nearly all of the gasoline sold in Syria comes from Rumania, and the rise in the price of bulk gasoline in that country was assigned as the cause of the price increase in Beirut in September. Early in November independent importers began to undersell the large importing companies with the result that the price generally was lowered. The influence of the independent importers on the price of gasoline and kerosene is important. When circumstances such as the rise in the price of bulk in Rumania or local conditions make it unprofitable for them to operate they suspend sales, concentrating on other products; during such a period the large companies may lose money.

When circumstances again make the market profitable the competition of the independent companies forces the price down and makes it difficult for the large companies to recoup the losses suffered during the period of depression. In spite of the high prices in Syria the large companies maintain that the market as a whole is not profitable. The large companies sell their gasoline and kerosene through native agents who receive from 3 to 5 per cent commission on sales. Individual retailers get their stocks from the agents and continue to sell at the same price, making their profit on the wooden cases and tins. All of the companies grant a 1 per cent discount to government officials, railway companies and certain other customers.



Ethyl is good for any car, as every well-informed filling station or garage man will tell you.

ETHYL GASOLINE—*all the way*

FOR the first time in automobile history, you can drive from New York to San Francisco or from Winnipeg to New Orleans, with the assurance of being able to get a fuel of standard quality, no matter where you need to fill your tank.

Leading oil companies, whose combined service covers the United States and Canada, now offer a superior anti-knock fuel at pumps marked "Ethyl." The makers of Ethyl fluid have set a minimum anti-knock standard to which all oil companies selling Ethyl Gasoline conform.

Distribution of Ethyl Gasoline has enabled the motor car industry to introduce cars of higher compression, which develop extra power and performance with fuel of Ethyl's anti-knock quality.

But any car — whatever its age or make — runs better on Ethyl. For in engines of average compression carbon formation automatically raises their compression and Ethyl, by preventing the "knock," turns the increased pressure into extra power.

For driving pleasure and for economy, it will pay you to stop at an Ethyl pump.

ETHYL GASOLINE CORPORATION

25 Broadway, N.Y. 56 Church St., Toronto, Can. 36, Queen Anne's Gate, London, Eng.

ETHYL — Knocks out that knock

© E. G. C. 1929

CALIFORNIA GASOLINE INCREASING IN EAST

(Continued from Page 141)

one of the large companies being a free seller during this period.

California refiners expanded their export operations during 1928, and at several times during the year were competing strongly with East Coast and Gulf refiners on European business.

Owing to the relatively large holdings of gasoline on the Pacific Coast, California refiners are expected to continue important factors in the East Coast market situation during 1929. A comparison of California holdings with those of the other important gasoline producing sections as of November 30 follows:

	Bbls.
East Coast	4,730,000
Appalachian	936,000
Indiana, Illinois, etc.	4,220,000
Oklahoma, Kansas, etc.	2,657,000
Texas	4,548,000
Louisiana and Arkansas	1,884,000
Rocky Mountain	1,169,000
California	8,931,000

Receipts of California gasoline at Atlantic and Gulf Coast ports last year showed a material gain over 1927 totals, but shipments of crude fuel oil, and gas oil continued to decline. The following table shows the movement of principal petroleum products from California to the East, by quarters, for 1928, with comparison for 1927;

	Barrels							
	First quarter		Second quarter		Third quarter		Fourth quarter	
	1928	1927	1928	1927	1928	1927	1928	1927
Gasoline	2,397,000	2,381,000	4,314,000	2,608,000	2,953,000	2,081,000	5,294,000	4,058,000
Crude oil	1,369,000	1,826,000	819,000	2,518,000	360,000	2,649,000	559,000	3,483,000
Gas oil	459,000	1,236,000	377,000	941,000	361,000	608,000	379,000	1,072,000
Fuel oil	68,000	1,989,000	105,000	1,914,000	76,000	858,000	.....	1,833,000

Details of the movement, from week to week, during 1928, with comparison for the previous year, follow:

1928	Barrels			
Week ending—	Gasoline	Crude Oil	Gas Oil	Fuel Oil
January 7	170,000	.....	.....	.....
January 14	174,000	148,000	.....	68,000
January 21	196,000	333,000	244,000	.....
January 28	231,000	90,000	64,000	.....
February 4	110,000	.....	.....	.....
February 11	256,000	153,000	.....	.....
February 18	223,000	169,000	151,000	.....
February 25	150,000	.....	.....	.....
March 3	228,000	225,000	.....	.....
March 10	263,000	86,000	.....	.....
March 17	158,000	.....	.....	.....
March 24	158,000	76,000	.....	.....
March 31	80,000	90,000	.....	.....
April 7	465,000	.....	.....	.....
April 14	153,000	59,000	60,000	.....
April 21	532,000	174,000	.....	.....
April 28	155,000	90,000	.....	.....
May 5	345,000	90,000	165,000	.....
May 12	354,000	169,000	.....	.....
May 19	313,000	.....	76,000	105,000
May 26	238,000	.....	.....	.....
June 2	288,000	78,000	.....	.....
June 9	240,000	.....	.....	.....
June 16	338,000	78,000	.....	.....
June 23	419,000	81,000	76,000	.....
June 30	534,000	.....	.....	.....
July 7	158,000	.....	.....	.....
July 14	253,000	.....	.....	76,000
July 21	638,000	90,000	.....	.....
July 28	161,000	78,000	.....	.....
August 4	331,000	80,000	146,000	.....
August 11	545,000	112,000	76,000	.....
August 18	288,000	.....	.....	.....
August 25	435,000	.....	140,000	.....
September 1	144,000	.....	.....	.....
September 8	.....	.....	.....	.....
September 15	143,000	83,000	.....	.....
September 22	599,000	80,000	70,000	.....
September 29	441,000	.....	.....	.....
October 6	.....	151,000	.....	.....
October 13	279,000	98,000	.....	.....
October 20	291,000	.....	.....	.....
October 27	285,000	.....	.....	.....
November 3	193,000	.....	97,000	.....
November 10	388,000	.....	.....	.....
November 17	602,000	.....	62,000	.....
November 24	382,000	.....	72,000	.....
December 1	374,000	73,000	.....	.....
December 8	413,000	.....	78,000	.....
December 15	153,000	74,000	.....	.....
December 22	274,000	.....	.....	.....
December 29	477,000	.....	.....	.....

Total receipts of California lubricating oils at Atlantic and Gulf Coast ports during 1928 amounted to 264,000 bbls. Receipts of California kerosene and kerosene distillate aggregated 344,000 bbls.

1927	Barrels			
Week ending—	Gasoline	Crude Oil	Gas Oil	Fuel Oil
January 8	150,000	197,000	80,000	161,000
January 15	145,000	78,000	.....	156,000
January 22	170,000	.....	75,000	.....
January 29	80,000	80,000	.....	205,000
February 5	493,000	357,000	75,000	433,000
February 12	157,000	197,000	231,000	78,000
February 19	158,000	.....	70,000	90,000
February 26	70,000	185,000	95,000	.....
March 5	396,000	88,000	70,000	.....
March 12	214,000	158,000	70,000	545,000
March 19	78,000	174,000	395,000	75,000
March 26	360,000	312,000	75,000	242,000
April 2	.....	.....	235,000	.....
April 9	152,000	.....	75,000	76,000
April 16	74,000	114,000	73,000	160,000
April 23	262,000	198,000	.....	458,000
April 30	298,000	296,000	.....	272,000
May 7	176,000	90,000	72,000	187,000
May 14	74,000	.....	71,000	79,000
May 21	391,000	.....	167,000	72,000
May 28	78,000	75,000	.....	.....
June 4	245,000	150,000	.....	162,000
June 11	173,000	521,000	.....	206,000
June 18	244,000	293,000	.....	64,000
June 25	361,000	290,000	175,000	133,000
July 2	80,000	491,000	73,000	45,000
July 9	173,000	147,000	153,000	70,000
July 16	75,000	268,000	.....	.....
July 23	420,000	488,000	75,000	135,000
July 30	258,000	.....	65,000	59,000
August 6	158,000	341,000	74,000	.....
August 13	232,000	337,000	.....	138,000
August 20	448,000	264,000	163,000	154,000
August 27	150,000	365,000	78,000	.....
September 3	167,000	430,000	.....	302,000
September 10	237,000	406,000	.....	107,000
September 17	385,000	303,000	70,000	59,000
September 24	325,000	78,000	79,000	191,000
October 1	227,000	233,000	223,000	224,000
October 8	207,000	164,000	166,000	218,000
October 15	252,000	205,000	.....	204,000
October 22	255,000	143,000	67,000	124,000
October 29	305,000	198,000	78,000	250,000
November 5	120,000	374,000	70,000	70,000
November 12	327,000	273,000	.....	70,000
November 19	153,000	95,000	78,000	.....
November 26	77,000	.....	.....	.....
December 3	224,000	216,000	93,000	.....
December 10	165,000	375,000	.....	326,000
December 17	95,000	110,000	74,000	.....
December 24	446,000	151,000	.....	.....
December 31	255,000	159,000	74,000	.....

A total of 347,000 bbls. of lubricating oils from California were received at Atlantic and Gulf Coast ports during the year. Receipts of California kerosene shipments during the year aggregated 168,000 bbls.

Gas Oil

East Coast refiners drew on California for gas oil in a small way during the summer season, when a large demand for straightrun gas oil for cracking existed along the Atlantic Seaboard, but with the exception of several shipments of gas oil for use as furnace oil during the closing quarter, the movement was rather routine. While there was nothing in the nature of a heavy surplus of gas oil stocks in the East, production was sufficient for the current needs of the refiners, and Pacific Coast gas oil was not in position to compete in the open market in East Coast territory.

Crude and Fuel Oil

There was a sharp falling-off in movement of California fuel oil to the eastern seaboard during the year. Atlantic Coast refiners were carrying excessive stocks of this oil throughout the year, and the market position in the East was so weak that California refiners were unable to compete.

Eastern buying of California crude oil also slackened perceptibly. Some of this oil was brought on from California by the large integrated companies with California connections, and used in cracking operations at East Coast refineries, but aggregate volume for the year showed a sharp falling off from 1927 totals.

MANY SALT DOMES DISCOVERED IN 1928

(Continued from Page 159)

by the Louisiana Land & Exploration Co. in the discovery of nine new domes in as many months, most of these being in bays, lakes and other waterways in Terrebonne and LaFourche Parishes, right on the Gulf. Since the discovery of these domes, the Louisiana Land & Exploration Co. has turned the development of them over to The Texas Company, which, according to the transaction, will drill a minimum of four tests on each dome.

Due to the fact that the Texas part of the coast has been gone over many times, new domes discovered there during the year were mostly deep seated. The increased efficiency of geophysical exploration enabled operators during the year to check these deeper domes which previous work had failed to reveal.

Fannette and Long Point

First production on both the Fannette and the Long Point Domes also was found during 1928. On the former dome in Jefferson County, Gulf Production Co.'s No. 6-A Bordages encountered a sandy shale at a total depth of 4,775 feet, from which a 150-bbl. pumper was completed. The well produced for about two months. At this writing another test, No. 2 Burrell, 600 feet southeast of the discovery well, is in but it caught fire immediately after a blow out from a sand at 5,600 feet, and as it is still burning there is no way of determining what it will do. It is known to be making lots of gas and some oil. This dome was discovered in 1925 by the seismograph and since then more than a dozen tests have been drilled, some of which have good showings and one flowed for a short time, but none made a commercial well.

Long Point's first well was not as successful as Fannette's, as it pumped only about 50 bbls. net oil for not longer than two weeks. Long Point was one of the first geophysical domes, being discovered in 1924 by torsion balance. Several score of tests have been drilled on and around it. The first well was Gulf's No. 12 Wolf, pumping from the shallow cap rock at 594 feet.

The first important oil at Allen Dome, Brazoria County, also was found during the early part of 1928 when Shell Petroleum Corp.'s No. 4 Allen was completed flowing 702 bbls. daily of pipe line 33 gravity oil. Two small pumpers previously had been completed, producing but a short time each. Production at Allen is very deep being from sands below 5,10 feet. The dome at present is producing less than 10 bbls. daily.

Seven geophysical domes were proved up as salt domes during 1928 with one or more tests drilling into salt or cap rock. These were DeWalt, San Felipe and Lon Lake, Texas, and Bayou Blue, Black Bayou, Calcasieu Lake and White Castle, Louisiana. On none of these, excepting DeWalt, has commercial production been found. The fact the first test drilled on each of these domes, except DeWalt, proved the existence of the dome demonstrated again the efficiency of the geophysical instrument. The first test at DeWalt might have hit the cap rock or salt if it had been drilled deep enough but drilling was stopped when a productive sandy shale was found above the dome.

Boling Dome Productive

Opening of production on the eastern side of the Boling Dome and extension of production on the southern flank were results of a fairly active drilling operation carried on around that dome. The first well was Hyde Production Co.'s No. 1 Fotjeck on the northeast, this well being completed in May flowing 200 bbls. of pipe line oil. This was followed by the completion of six other wells at scattered points on the long east flank, extending from the far southeast to the far northeast, a distance of several miles. Five other deep sand tests are under way there at present. The middle of the year Vacuum Oil Co. drilled a wildcat 1,600 feet from production on the south flank. This blew out around 2,900 feet, flowed 600 bbls. daily for several days, and, after another blow out and fire which wrecked the derrick and rig, was abandoned. The Texas Company then drilled a wildcat on a tract adjoining Vacuum's to the west and recently got a 4,200-bbl. well at 4,031 feet. Vacuum now is deepening its test formerly abandoned.

North Dayton Deep Sand

A deep sand was opened at North Dayton in July when Harrison Oil Co. brought in No. 3 Quintette flowing better than 4,500 bbls. daily of pipe line 37.5 gravity oil. The well proved a remarkably consistent producer despite its high gravity. This really was the first important production at North Dayton although drilling had been going on for over 20 years and a number of shallow pumpers had been completed. Harrison Oil Co. earlier in the year had obtained a 400-bbl. deep well a short distance from the prolific well but that proved short-lived. This deep production is approximately a quarter-mile south of the shallow field.

An attempt was made to prove up a deep sand off the west side of the old Jennings but so far this has proved disappointing. One deep producer was completed by E. F. Simms but this flowed only a short time and went to water. Drilling there now is virtually at a standstill.

4,000-Bbl. Opener

On the southeast flank of Barbers Hill, Chambers County, one of the old domes, Bennett Petroleum Co. got a 4,000-bbl. well in its No. 1 Smith from a deep sand at 5,272 feet last October. This well turned out the dome's best well as nearly all other completions in the more than 20 years drilling there, had been drowned out by salt water. Since the drilling of that well Humphreys Corp. has drilled a 1,900-bbl well in the same district and at this writing it also is holding up unusually well without water, but offsetting the Bennett well the same company got a dry hole, leaving the status of that deep sand rather uncertain.

The year also was marked by extension of production at Markham to the southeast flank, previous production having been confined to the southwest, and by important extensions and good wells at Pierce Junction, particularly on the north and west flanks. New production also was found on the east flank of Starks, heretofore unproductive.

Spindletop, the oldest field on the coast, continued to figure in the drilling operations, but these were confined almost entirely to holdings of Yount Lee Oil Co. which has steadily been moving produc-

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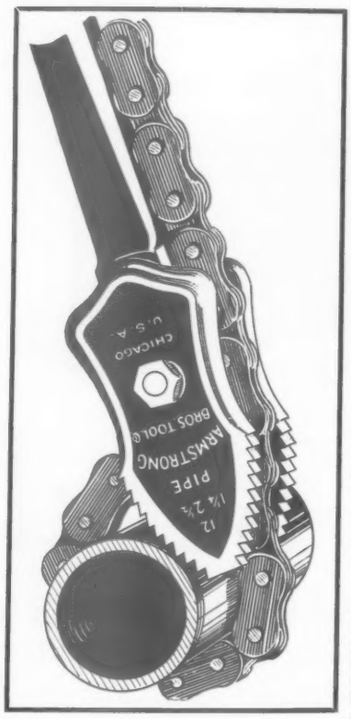

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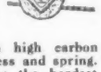

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tion up around the west side of that dome. The Texas Company contributed a substantial footage extension but the well, No. 1 Gladys City, made only a small amount of oil.

Shallow Pay at South Liberty

Recently in the limelight again has been the South Liberty Dome, where a newly discovered shallow sand on top of the dome is being developed. This area, opened by the Sun Oil Co. early in November by a 1,500-bbl. well at 875 feet in its No. 10 Mitchell, still is in the midst of a drilling boom which is steadily moving production in a line northward. The first well, started as a cavity hole for the disposal of salt water, has been followed by the drilling of more than 30 shallow holes so far with only a few out and out failures. Until this writing, Sun Oil Co. seemed to hold a monopoly on the good wells on its Mitchell tract but just now the Gulf Production Co. has completed a 2,800-bbl. well on its Marrs McLean tract to the west.

This shallow development gives promise of extending northward to another shallow pool previously opened during 1928 by the Liberty Petroleum Co. in its No. 1 Turner. That well, which was about 1,600 feet north of Sun's No. 10 Mitchell discovery well, created a sensation for a time when it blew in and flowed an estimated 1,000 bbls. daily for a time from a sand slightly below 1,600 feet. Three other tests are drilling in that vicinity. The well now is making less than 50 bbls. daily.

The Liberty Dome was the scene of two other drilling booms during 1928, one when Yount Lee Oil Co. extended production of the deep sand on the east flank 500 feet to the north. This extension was followed by a rapid proving up of the territory in that immediate vicinity by the Sun Oil Co., Yount Lee Oil Co. and The Texas Company, the latter holding the Staiti lease between the extension and the main field. The two former companies since then have been moving production steadily further northward along the dome. This development is approximately 500 to 1,000 feet east of the new shallow sand area.

The other boom occurred about the same time following the bringing in of a wildcat by The Texas Company on its Green lease, 1½ miles northwest of the main Liberty Field and presumably on the north side of the dome. That well flowed initially 2,500 bbls. daily and still is producing but of the dozen other tests drilled within a few hundred feet of the discovery well only three made any oil at all and these were abandoned together with the leases. Lately, the Vacuum Oil Co. is rigging up for a test in the Trinity River for a test to the west of that district and The Texas Company has a rig up for a test on its Pickett lease to offset the Vacuum test.

Deep sands were found on the south side of the old Humble Field by the South Texas Petroleum Co. in the W. T. Charles Survey. At a depth of 5,347 feet this company's No. 1 Morris came in flowing 5,280 bbls. through a three-quarter-inch choke. This well still is producing better than 1,900 bbls. pinched in. Very little drilling has been going on at Humble, operations being confined to a few work-overs, a few shallow pumpers, and three or four scattered deep tests.

Total production of the Gulf Coast for 1928 registered a decline of 5,305,244 bbls. in the face of the new production added but there was a marked tendency among compaines bringing in or developing new fields to hold production to a minimum, and, as previously mentioned, to drill the fields conservatively. The total production for the year was 47,868,842 bbls. as against 54,174,086 bbls. of the previous year.

Such old fields as Spindletop have suffered some losses which have more than offset the new production added in newer fields during the year. However, production at Spindletop, although somewhat less than during 1927, has been maintained fairly steady during 1928 through the consistent drilling of Yount Lee Oil Co. on the west side of the dome.

A total of 1,420 completions were reported during the year, this being an increase of 275 over those of 1927. [illegible] 777 producers completed had a total [illegible] itial production of 431,971 bbls., [illegible] being a decrease from that of [illegible] There were 15 gas wells and 628 [illegible] donments. By fields and also by mont[illegible] the completions were:

GULF COAST
Completions by Fields
Texas

Field—	Comp.	Prod.	Dry	Ga
Barbers Hill	13	4,885	7	
Batson	39	778	6	
Big Creek	22	8,903	8	
Blue Ridge	109	55,829	26	
Boling	157	13,750	113	
Damon Mound	4	1,000	4	
Dewalt	10	6,000	8	
Goose Creek	31	1,200	8	
High Island	15	5,515	1	
Hull	70	19,507	18	
Humble	14	3,065	3	
Liberty	73	26,644	13	
Markham	14	1,298	5	
Nash	18	8,526	10	
North Dayton	2	5,220	1	
Orchard	6	1,400	1	
Orange	52	9,449	17	
Pierce Junction	83	53,078	27	
Raccoon Bend	11	7,445	4	
Saratoga	21	462	6	
Sour Lake	27	1,160	7	
Spindletop	167	104,936	46	
West Columbia	7	1,785	1	
Miscellaneous	158	5,207	139	
Total Texas	1,123	347,042	472	1

Louisiana

Parish—	Comp.	Prod.	Dry	Ga
Anse LaButte	4	0	4	
Bayou Bouillon	9	6,081	4	
Edgerly	27	1,110	11	
Hackberry	49	32,015	22	
Jennings	42	2,425	18	
Lockport	24	3,828	8	
Sorrento	8	8,100	4	
Starks	9	3,533	5	
Sulphur	15	18,000	5	
Sweet Lake	5	8,100	1	
Vinton	28	1,478	7	
Welsh	3	54	1	
Miscellaneous	74	105	65	
Total Louisiana	297	84,829	155	
Total G. Coast	1,420	431,871	628	1
Total 1927	1,145	521,596	465	1
Difference	275	89,725	163	1

Completions by Months

Month—	Comp.	Prod.	Dry	Ga
January	92	36,570	36	
February	123	42,741	64	
March	126	44,487	43	
April	128	35,857	58	
May	125	33,328	55	
June	112	33,908	49	
July	105	32,744	44	
August	128	29,933	46	
September	139	35,881	79	
October	92	29,557	42	
November	121	33,348	57	
December	129	43,517	55	
Total 1928	1,420	431,871	628	1
Total 1927	1,145	521,596	465	1
Difference	275	89,725	163	1

OIL EXPORTS TRADE IN 1928 SHOWED INCREASE

(Continued from Page 144)

in some quarters, the export association will in no sense be a "big company" project. While the larger interests have taken the lead in arranging for the organization of the combine, this was due entirely to the impracticability of calling together the industry as a whole, and the fear that such a method of launching the project would make it unwieldly from the start. Under the organization plan, the executives of the larger companies have acted, in effect, as representatives of the entire industry, and have borne the brunt of the entire labor of whipping the plan into shape. The plan of organization calls for the participation of the entire industry, if for no other reason than that less than a majority proposition would defeat the very aims of the group's sponsors at the outset.

Members of the industry who have given the export corporation idea serious thought are anticipating far-reaching and constructive results from the workings of the combine. Export groups, such as the proposed Petroleum Export Corporation, have already been functioning with a considerable degree of success in other American industries, and the petroleum group is fortunate in that it is in position to profit by the mistakes which the various other groups have made in getting their export combines functioning upon a sound basis.

South American Refineries

Refiners in the East Coast area and at the Gulf expect sharper competition from South American refined products, beginning this year. The new Lago refinery at Aruba, Dutch West Indies, with daily capacity of more than 100,000 bbls., will go into production toward the close of the first quarter. While operation of this plant will take considerable quanti-

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ties of Venezuelan crude off the East Coast market, and may possibly benefit the fuel oil market position to some extent, it will mean greater competition in sales of gasoline, kerosene and other products in markets normally supplied from the East Coast and the Gulf. In addition to the development by Lago, which through Pan American Petroleum & Transport, is controlled by Standard Oil Company of Indiana, Royal Dutch-Shell and other interests operating in South and Central America are expected to increase their refining operations close to the fields. Royal Dutch-Shell, in particular, will be an important factor in the East, through its recent acquisition of the business of New England Oil Refining Co. Standard Oil Co. of New Jersey will also extend its operations in Eastern and export markets, due to its acquisition of the business of the Beacon Oil Co., which runs largely on Venezuelan crude, and has wide distribution in the New England territory.

EASTERN OPERATORS HAD GOOD YEAR DURING 1928

(Continued from Page 159)

as general as the use of air in pressure wells but it is the opinion of some operators that it is more satisfactory than air. There has not been enough of either in use to give the air-gas pressure method a fair trial, because the increase in production by flooding with water has been satisfactory to so many owners of old wells in the two fields.

Crude prices have now reached a level where, if they are maintained or further increased, a great deal of drilling can be expected when spring comes. The outlook for 1929 in these old-time oil fields is acknowledged by oil men to be the best in many years.

The refineries of northwestern Pennsylvania and southwestern New York in the race to keep pace with the demand for Pennsylvania products made many improvements and additions to their properties while marketers found a steadily increasing demand facing them. Cylinder stocks were especially brisk toward the close of the year in the refined markets of the Pennsylvania territory.

The outstanding development in pipe line circles during the year was the starting westward movement of crude through the National Transit system. Texas crude transported by tanker to the Atlantic Seaboard is then shipped to Franklin through the National Transit lines. This has materially increased the traffic handled for the year by the National Transit Co.

The following table illustrates the amount of field work in New York and northwestern Pennsylvania for the year:

EASTERN FIELDS
Northern Division
Summary of Completed Wells in 1928

Fields—	Comp.	Prod.	Drlg.	Gas
Allegany	474	850	4	6
Bradford	1,572	3,089	1	11
Middle Field	83	154	5	2
Venango-Clarion	271	364	24	66
Butler-Armstrong	108	130	15	24
Total 1928	2,508	4,487	69	109
Total 1927	2,774	5,983	53	101
Difference	266	1,496	16	8

YEAR OF GOOD BUSINESS ON THE EAST COAST

(Continued from Page 147)

season, when it became known that Royal Dutch interests had purchased an interest in a New England refining and marketing company, some concern was felt regarding a possible price war by that organization in an effort to expand its activities, but up to the close of the year, nothing had developed in that direction.

During the latter part of the year, one of the leading companies in the territory placed upon the market a new high-test gasoline, for which it claimed all the virtues of practically all of the premium gasolines being marketed in the area. The new gasoline was offered to the motorists at no advance over the retail price for ordinary gasolines of other refiners. This, in effect, amounted to a cut of 2 to 3 cents a gallon, in as much as other refiners were getting this differential for their premium fuels.

Although a price war on premium fuels has developed since the turn of the year, the East Coast market successfully weathered the entire year 1928 without experiencing any real sharp stringency of this character.

A feature of the past year in marketing operations in New York City was the general resumption of tank wagon deliveries of gasoline in the city, and the discarding of the steel barrel method of shipping which had been installed during the period in which tank truck movement of gasoline through the city's streets had been prohibited by fire department regulations.

Kerosene

Strong markets for kerosene prevailed throughout the year. Starting off 1928 at 7½ cents a gallon, water white, 41-43 in tank car lots, held firm at that figure for the first quarter, going a half cent higher to 8 cents toward the close of the second quarter and moving upward a full cent per gallon to 9 cents by October 1, closing the year at that level. There was a good demand reported throughout the entire year, the market at times during the fall season being closely sold up. Several cargoes of California kerosene and kerosene distillate were received in East Coast markets during the year, this oil being brought eastward to complete deliveries against some furnace oil contracts.

While data concerning kerosene volume in Eastern tank car markets for the year is lacking, it is estimated that sales for the period recorded increases ranging from 10 to 15 per cent over totals for the previous year.

There was very little in the nature of news in the kerosene tank wagon market in this area last year. The market was steady at 15 cents per gallon throughout the entire year, with sales totals estimated to have shown gains of from 12½ to 15 per cent over 1927 figures, on the average. Tank wagon prices in other sections of the East, aside from New York and New England, were cut during the closing quarter of the year, but marketers in the latter areas were not forced to meet outside competition and succeeded in maintaining their markets.

Furnace Oil

Gallonage in the furnace oil division of the market outstripped the predictions of even the most optimistic last year. Reports from various sources indicate gains of from 25 to 50 per cent in sales totals, and even more than the latter figure in a few instances. An intensive selling campaign throughout the entire East by the oil burner manufacturers resulted in increases of from 50 to 100 per cent in the number of new installations by various makers, and this was naturally paralleled by a corresponding gain in the demand for oil fuel. The lower prices prevailing on furnace oils during the 1928 selling season also tended to stimulate consumption. Standard of New Jersey has in many instances sold furnace oil on two-year contracts, carrying over through the 1929-30 selling season, while the other refiners, in most cases, have not sold beyond spring, 1929. A number of the newer types of oil burners are efficiently operated on much lower grade oil than has been formerly required, and this cheapening of maintenance expense is expected to bring about a still greater expansion in burner and oil sales during the current year.

Fuel Oil

There was a weak fuel oil market prevalent throughout the entire year, the price ruling at the year end being 30 cents a barrel under peak for the year, 70 cents under the high level for 1927, and 30 cents under the low figure for that year. Fuel oil was in oversupply in East Coast territory during the entire year, and the outlook for 1929 in this respect is but little improved, although leading interests are inclined to look for a slightly better average price basis this year.

Bunker "C" at Bayonne opened the year at $1.35 a barrel and held at that

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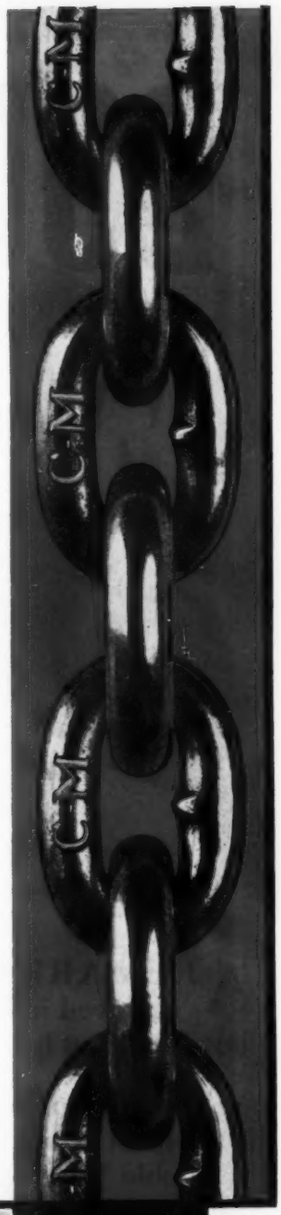

NO other high speed hoist is so perfectly adapted to oil field work as the C-M Model K Cyclone Hoist.

First, it takes 18% less effort to lift the load than any other high speed hoist. Its all anti-friction bearing construction makes that possible.

Second, the entire hoist mechanism is enclosed in a dust-proof, oil-tight housing. Around the oil fields where dust and dirt play havoc with machinery, this dust-proof housing means a considerably longer life for the C-M Model K Cyclone Hoist than for any other high speed hoist.

And third, it's safe. Every part must test to 100% overload capacity before it leaves the factory. And in addition every C-M Cyclone Hoist is equipped with Hercules Inswell Electric Welded Load Chain, the chain that is always five times as strong as its rated capacity.

There are other reasons for the leadership of the C-M Model K Cyclone Hoist. Our oil field expert will gladly explain them to you. But these three facts alone—its unusually high efficiency, the dust-proof housing and its safety—make the Model K the best hoist built for oil field work. Be sure you see one before you buy hoists.

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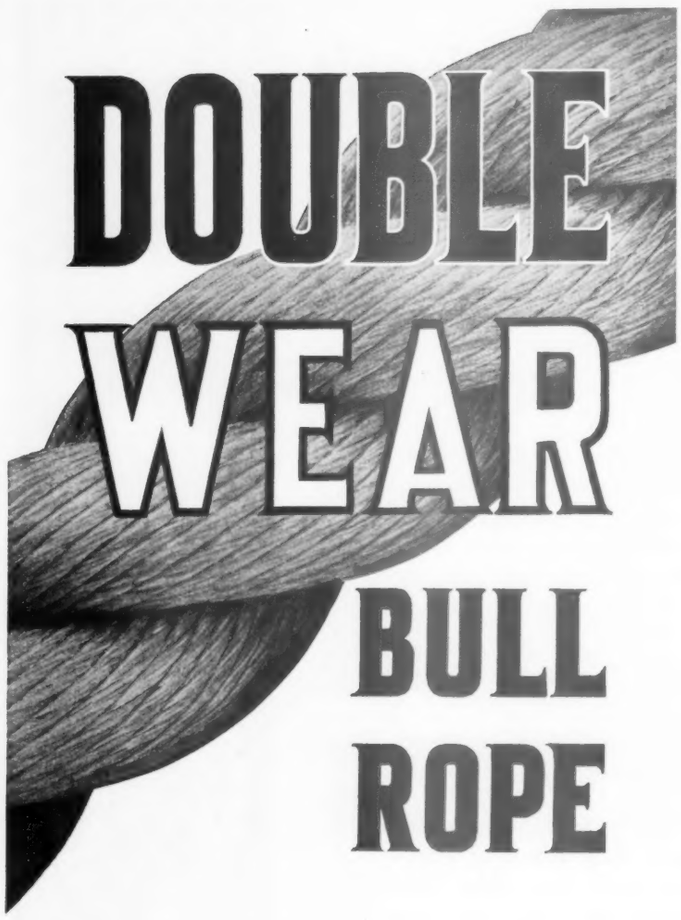

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The Columbian Rope Company has really done something for drillers in giving them this Pure Manila Bull Rope at a low cost. The drillers in turn appreciate it and show their appreciation by purchasing Double Wear Bull Ropes in enormous quantities.

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figure until early May. At that time, price cutting developed, and principal refiners were forced to lower their quotation to $1.25 in order to hold large steamship contract business. The 10-cent cut, however, was not sufficient to take up the slack, and the market sold off an additional 10 cents to $1.15 in late June and dropped to $1.05 the following month, holding at that figure for the remainder of the year.

Perhaps the outstanding development in marketing operations in the East this year was the placing of the Shipping Board contracts for bunker oil. On July 10, the board awarded the Gulf Refining Co. a contract to supply the requirements of the Emergency Fleet Corp. at New York, Philadelphia, New Orleans, Galveston and Port Arthur for a period of three years, beginning January 1, 1929. The contracts involve, in the aggregate, about 10,000,000 to 12,000,000 bbls. annually. The prices specified in the contracts are:

New York and Philadelphia, average price of 92 cents a barrel terminal, and 97 cents barged alongside.

New Orleans, 86 cents a barrel at terminals and 91 cents alongside.

Galveston, 89 cents at terminals and 94 cents alongside.

Port Arthur, 84.33 cents at terminals and 89.33 cents alongside.

The Shipping Board also contracted with Gulf for its cargo requirements, covering oil for its own bunkering stations, at 79.33 cents a barrel, Port Arthur terminal.

The Shipping Board later contracted with Gulf for its bunker requirements for three years at Charleston, Savannah, and Jacksonville at 93 cents a barrel at terminals and 98 cents barged alongside, and for a similar period at Tampa at 90 cents and 95 cents.

In order to meet this competition, large companies holding contracts with privately owned steamship lines in practically all instances extended these contracts to cover the same period specified in the Shipping Board contracts, although they have not lowered their prices to the levels at which the Shipping Board is now buying. Many of the contracts with private lines carry a provision releasing the buyer from the necessity of drawing bunker oil on these contracts at any time bunker "C" is available in the open market at 10 cents under the contract price and as long as this differential shall continue.

California fuel oil receipts fell off materially during 1928 at principal East Coast markets.

Gas Oil

Markets were fairly well stabilized throughout the year. Leading sellers were successful in maintaining 32-36 gravity oil at 5¼ cents a gallon for all 1928, although at times considerable variance in spot quotations was shown by isolated open market transactions. Demand for gas oil was fairly even during the first quarter of the year, but toward the middle of the second quarter a rather heavy call for straightrun gas oil developed, refiners requiring this oil for cracking operations. So tight did the market position become at this period that principal refiners were storing their surplus output of straightrun gas oil, after filling contract requirements, against their own needs later in the summer. During this period, smaller operators were within three-eighths of a cent per gallon of the market for 32-36 oil in their quotations on some of the lower grades. With the end of the season of heaviest consumption of gasoline, however, the gas oil situation slackened off a little, and offerings again became rather liberal. The closing quarter of the year witnessed a strengthening of the market position, owing to the exceptionally heavy sales of furnace oil. Low grade gas oil was available during the last three months of 1928 as cheaply as 4½ cents a gallon, although the general asking price of 28 plus was 4¾ to 5 cents, and smaller sellers of 32-36 were not going under 5 cents on the ordinary run of business. Gas stocks at East Coast refineries, while sufficient for the current needs of the trade in this section, are by no means excessive, and refiners look for the maintenance of a fairly strong market.

Diesel Oil

Consumption of this oil was running substantially in excess of totals for previous years, with every indication that 1929 will witness a still broader expansion in Diesel oil trading. The local market opened the year at $2.10 a barrel, which price held until toward the close of the first quarter, when the market sold off 10 cents at $2, this latter figure prevailing over the balance of the year. With bunker "C" sharply lower, the normal differential in price between the two oils was completely eliminated in 1928, and Diesel established on a firm footing.

Considerable new construction of Diesel ocean tonnage was completed during 1928, and East Coast refiners are of the opinion that an estimate of a gain of 25 per cent in Diesel oil sales in this territory for 1928 is not excessive. Volume of contract business already written for 1929 indicates a continued rapid growth in demand for this oil.

While some operators of ocean tonnage expressed dissatisfaction during the course of the year over the maintenance of the Diesel oil market in the face of falling prices for bunker "C," recognizing operating economies of the former oil, were so great that the relatively firm market did not develop any appreciable curtailment of consumption in any important consuming industry.

Lubricating Oils

Cylinder stocks furnished the principal pyrotechnics in this division of the market during 1928. There was nothing outside of the ordinary routine price movements during the first nine months of the year, but during the closing quarter the market started on a wild upward movement, and peak for the move was yet to be reached as the year came to a close. The bull movement during these latter three months carried the market to levels all the way from 2 to 15 cents a barrel over the prices prevalent at the start of 1928.

Higher prices for Pennsylvania crude oil were in some measure responsible for the sharp jump in cylinder oil prices, although a shortage of wanted grades, and a general disinclination on the part of refiners to book futures, was likewise a potent factor in boosting the price structure. A comparison of the prices ruling on cylinder oils as of January 1 and December 31, 1928, follows:

	—Cents per gal.— Jan. 1	Dec. 31
600 s.r.	17	30
635 s.r.	19	31
650 s.r.	20	34
600 Pa. flash	23	38
630 Pa. flash	35	42
600 Warren E	25	35
600 Oil City E	24	34
Bright stock, light	44	46
Bright stock, dark	42	44

Domestic consumers had permitted their reserve holdings of cylinder oils to become seriously depleted toward the latter part of the year, and the same held true of export operators, both classes of buyers anticipating a lower market. With export demand showing sharp gains, however, and production increases not equaling this large volume, the market soon got out of hand, and for the last six weeks of 1928 was little better than nominal from the standpoint of prices. While Pennsylvania crude has again been marked up since the turn of the year, operators in the local market are inclined to look for a downward reaction in cylinder oil prices, holding that the recent price advance has far outstripped any possible jump in production costs, and that current price levels are not justified by the statistical position of the market. Notwithstanding this bearishness on the part of buyers, however, refiners evidently view the outlook with considerable optimism, showing very little willingness to book futures.

Paraffin Oil

Little deviation from the normal routine movement was evident in the paraffin oil branch of the market during the past year. Business was of rather light

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Bits of Agathon Steel go right through the toughest rock for the steel is just the right analysis to resist abrasion without loss of toughness.

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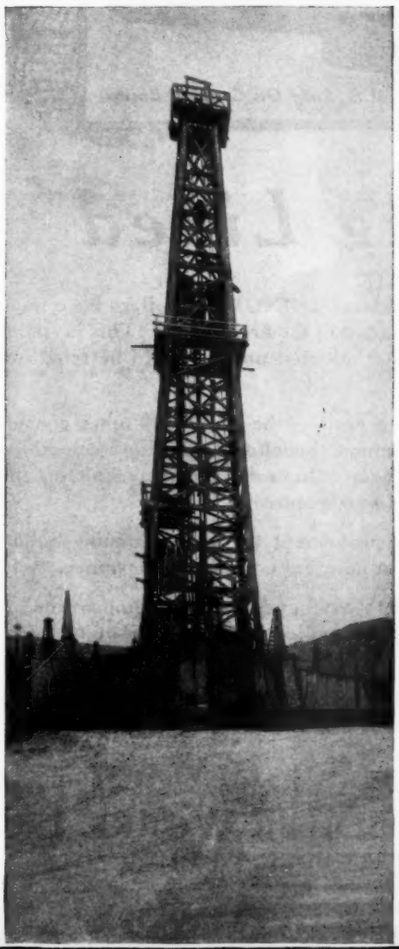
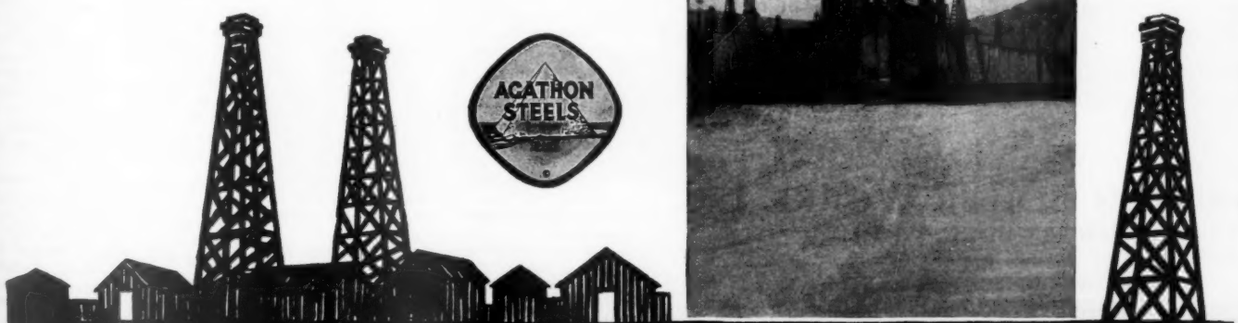
In drilling their famous Olinda 96 Well, Midway Oil Company used Agathon Steel.





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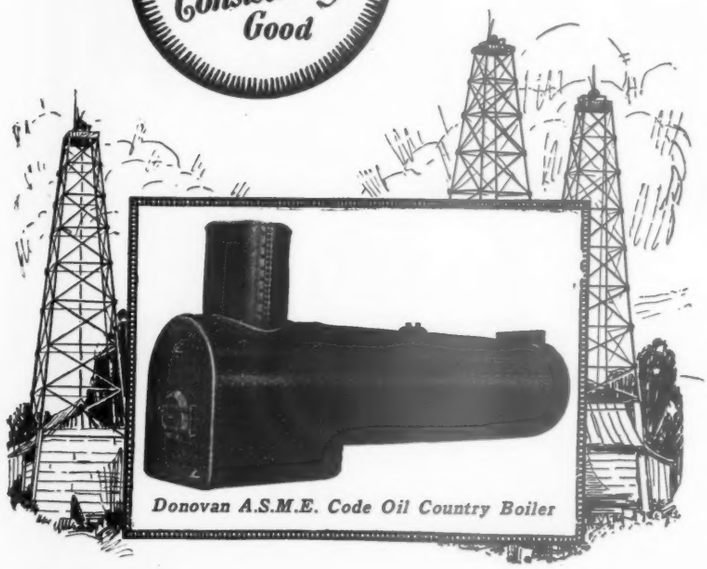

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Long Lived

For some time, the large DONOVAN boilers have been supplied with tubes welded in the firebox end. This is standard with us but was not adopted until it could be tried out thoroughly.

It has been found to prolong the life of the tubes considerably, not by overcoming the effects of scale (something which no one has yet been able to do) but by postponing the effects of bad water as long as possible.

This is another improvement to the oil country boiler, making it better, and at no extra cost to the consumer.

The present DONOVANS embody all the improvements yet developed that can be applied practically to the oil country boiler.

DONOVAN is fully alive to the needs of the industry and when better boilers can be made we will make them.

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proportions during the first half of the year at East Coast refineries, low priced offerings out of the Gulf taking care of much of the export demand. During the second half of the year, however, the situation showed improvement, and East Coast refiners began to share in the export business to a greater extent.

Price movements for the year were narrow. Pale paraffin oil, 25, opened 1928 at 12 cents a gallon and held at that figure until the start of the closing quarter, when it eased off a quarter cent to 11¾ cents, closing the year at that figure. Spot 28 pale paraffin, on the contrary, firmed up somewhat, showing a half-cent advance during the closing quarter to 7½ cents per gallon. Another grade to show added strength during the year was 250 red paraffin which recorded a half-cent gain to 11 cents a gallon during the closing quarter. Other grades held unchanged throughout the year.

Paraffin Wax

The paraffin wax market showed a steady advance over the entire year, due largely to heavy export buying although increased consumption on the part of the domestic trade was also a factor in the situation. Much of the strength was in fully refined grades, although crude scale also showed considerable firmness during the year, at times advancing to a point where the normal differential between scale and refined was cut practically in half.

Speculative operations late in the first quarter started the market on the upward move. A number of Eastern jobbers and export operators came into the market, and bought Pennsylvania wax on long-term contracts, some of them running through the third quarter of the year. Buyers seeking paraffin from their normal sources of supply in many cases found themselves unable to obtain sufficient stocks and were forced to buy from jobbers who controlled a large part of the current output. Refiners were not slow to take advantage of the situation thus created, and from midyear on were not inclined to book more than 30 days ahead.

For a time in the third quarter, it appeared that the market was about to break, and the undertone weakened, due largely to low priced offerings for shipment out of the Gulf. These off-priced lots were soon absorbed, however, and with the strong statistical position evident the market worked back into the control of the stronger interests.

Net advances for the year on the various grades were shown as follows: 120-122 a.m.p., 1¾ cents per pound; 125-127 a.m.p., 1⅞ cents per pound; 130-132 a.m.p., 2¼ cents per pound; and 135-137 a.m.p., 2½ cents per pound.

Statistically, the paraffin wax market showed considerable strengthening during 1928, stocks held by refiners falling off materially during the year.

Petrolatum

Prices moved within a rather narrow range in this division of the market during 1928. Although prices for Eastern crudes underwent a series of advances during the year, petrolatum quotations showed little reaction to the higher crude market.

White grades opened the year high at 8¼ cents for lily white and 9½ cents for snow white, easing off during the first quarter a quarter cent per pound in each instance. By July 1, the market for lily white was off a half cent from the year's opening price at 8 cents a pound, with snow white 1¼ cents down at 8¼ cents a pound, this price holding for the remainder of the year, while lily white again eased off, and closed the year at 7¼ cents a pound. Dark and amber grades, on the contract, showed a net gain of an eighth cent per pound in each instance for the year. Extra amber held firm at 3¾ cents a pound through the year, while cream opened the year at 6½ cents and eased off slightly, closing the year a half cent lower.

A feature of the market during closing half of the year was an unusually heavy demand from the pharmaceutical manufacturing trade, both domestic and export. In the case of the domestic trade, volume during the closing half of the year was considerably in excess of normal volume, consumers who normally cover their requirements for six months periods being forced to come back into the market for replacement stocks due to the exceptionally heavy volume of business on their products.

IMPROVED MARKETING PRACTICES A FEATURE

(Continued from Page 147)

retail distributor maintained the normal price relation between published tank wagon and service station schedules, they would have been in position to gross all the way from 5 to 9 cents per gallon on their gasoline sales. The retail distributors, however, likewise became imbued with the craze for volume, and began passing along their discounts and rebates to the consumers. Under these conditions, the tank wagon schedules published were little more than a target for price cutting. For example, with the wholesale market, in lots of approximately 300 to 1,500 gallons, quoted at 13 cents a gallon, the same brands of gasoline were selling at retail as low as 16 or 17 cents.

Leaders Took Notice

Early in the year several of the leading executives in the territory turned their attention from the problems in their crude oil producing departments, which had become fairly well adjusted through co-operative effort, and took up the sales end of the business. Orders went out to eliminate practically all of the rebating, price cutting, "advertising" allowances, and similar uneconomic sales devices. Contracts with retail station operators containing these preferential treatment clauses were allowed to expire, and new contracts written on a flat price basis. Some of the companies compromised in this respect, by giving the station owner a discount of 1 cent under the tank wagon basis if the gasoline was paid for in cash at time of delivery. This, however, was in the nature of a legitimate trading method.

While not all of the marketers operating in this area fell in line with the majority in their drive to restore marketing operations to an economic basis, sufficient co-operation developed to make the movement a success.

A Code of Ethics

A number of interests in the industry throughout the country had for some time been agitating for a code of ethics for the entire trade, conditions which had been prevailing in the East being paralleled by similar, and in some cases worse, practices in other marketing areas.

Eastern oil company executives were quick to seize upon the idea of such a code, and were among the staunchest supporters of the plan. The convention of the American Petroleum Institute in Chicago early in December witnessed the successful culmination of the drive for the outlining of some definite rules for the marketing of gasoline and other products.

While some difficulty is naturally anticipated in making the provisions of the code completely effective, it is indicated that principal factors in this area are standing behind the code and its various clauses, and operation of the code of ethics is expected to adjust many of the more vexatious problems connected with competitive gasoline marketing.

Growth of Competition

With the start of 1929, there is ample evidence that the provisions of the code and the attitude of the trade concerning this agreement, are to be subjected to the acid test in this territory. Numerous changes in the marketing lineup of the East Coast area are in prospect, and it is obvious that territorial lines, as generally recognized a few years ago, will be almost completely disregarded in the expansion programs of some of the larger units.

Atlantic Refining Co. during the past year has been extending its operations largely into territory formerly regarded as Standard Oil of New Jersey and Standard Oil of New York markets. Standard of New Jersey has also been

FIGHTING GRIEF SUCCESSFULLY

BOTH ON TOP AND BOTTOM OF THE WELL

WITH McEVOY PRODUCTS

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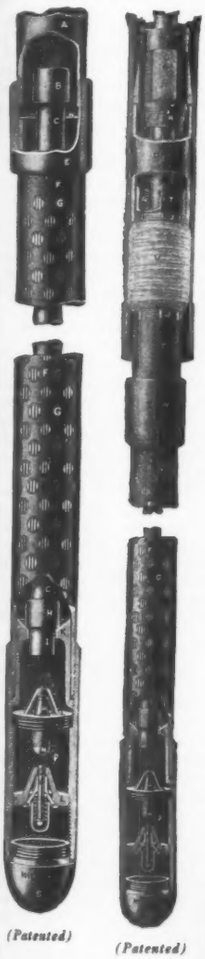


McEvoy Wireless Well Strainers and Set Shoe Assemblies for Bottom of Well.

(Patented) (Patented)

McEvoy Well Strainer with set shoe assembly equipped for single string well.

McEvoy Well Strainer with set shoe assembly and packer equipped for double string well.

FLUSH JOINT

(Patented)

McEvoy Flush Joint Type Strainer

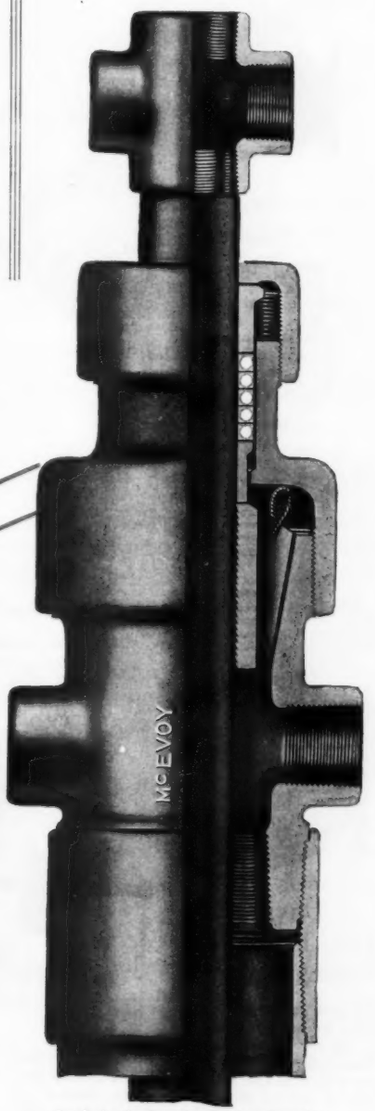
YES! Experience Counts

Oil field operators, the world over, can depend on McEvoy products because they have been developed and perfected through 28 years of McEvoy experience fighting oil field "grief." - - - *YES*, 28 years of practical engineering and oil field experience.

McEvoy Casing and Tubing Control Heads for Top of Well.

(Patent Applied for)

Above shows detail of body and cap with removable stuffing box, glands, and cap as well as adapter and slips frequently used for the smaller sizes of tubing when oil savers would need to be used as they are connected to the bottom of adapter for tubing up to 3". However slips are made for pipe, tubing or casing from 2" to 6⅝" and the heads are made in four sizes to fit pipe and casing from 4½" to 12½" inclusive.



Ready for hook-up for flowing through tubing any size from 2" to 6⅝", or air gas lift system.

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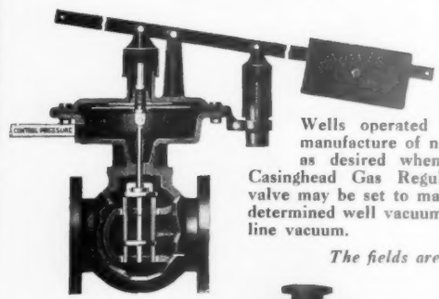


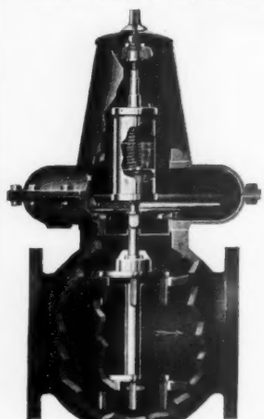
Davis Casinghead Gas Regulators

Wells operated by a vacuum, in the manufacture of natural gasoline, function as desired when equipped with Davis Casinghead Gas Regulators. This automatic valve may be set to maintain any constant predetermined well vacuum regardless of the main line vacuum.

The fields are full of them.

Davis Float Box *with balanced control valve*

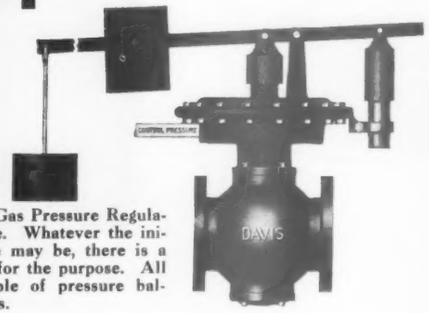
Outside control of the fluid level in a closed tank is best accomplished by means of the Davis Float Box with Control Valve. Accessibility, visible action, means for hand testing are features that recommend it. Made for all pressures and temperatures in direct connected and distant control types.



Davis *"Supersensitive"* Gas Relief Valve

Vapor gathering systems are now maintained in all plants that are making a fight against avoidable waste. The Davis Supersensitive Relief Valve performs a vitally important service in such systems. Its extreme sensitiveness and accurate balance allows the vapors to flow into the gathering line but prevents the vacuum from entering the tank.

Davis Gas Pressure Regulator



Natural gas pressures have to be controlled so as to be utilized. That is how the Davis Gas Pressure Regulator gets into the picture. Whatever the initial or service pressure may be, there is a type properly designed for the purpose. All function on the principle of pressure balanced by counterweights.

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branching out, notably in Atlantic Refining territory, and with the start of 1929 has entered Standard Oil of New York's home markets through acquisition of the Beacon Oil Co. Standard Oil of New York may logically be expected to develop into territory contiguous to its home area of New York and New England and will thus come into direct competition with companies which it never previously opposed in domestic markets. These are but a few of the outstanding examples of the changes already made and in sight. Other companies in the field, too numerous to classify, also have plans under consideration which will probably involve the spreading of their operations into new territory.

One of the most potent weapons exercised by some of the larger companies in stabilizing gasoline market conditions in "home" territories has been the extension of the chains of their own filling stations. Maintenance of these stations has aided them in establishing and holding gasoline price levels, and it is expected that further expansion in this direction may logically be looked for, now that the financial position of the major integrated companies is such that expenditures in this connection may be made. This policy, incidentally, is in direct contrast to that recently evolved on the Pacific Coast, where the large California companies have adopted a plan of divesting themselves of directly-owned retail outlets.

NEW POOLS FOUND IN ROCKY MOUNTAINS

(Continued from Page 154)

principal area of activity being in Lea County in the southeastern part of the State. There was no drilling in the proven pools, the Hogback, Table Mesa and Rattlesnake Domes in the northwestern part of the State, during the year with the exception of one deep test on the Rattlesnake structure, and comparatively little drilling in the Artesia and Maljamar Pools. While oil and gas discoveries were made in several of the wildcats, no important pool was opened during the year with the exception of the Hobbs structure in Lea County, on which only the discovery well was drilled to completion. The results as a whole, however, were sufficiently encouraging to warrant the operators in going ahead on an extensive scale in the southeastern area in the belief that the showing so far made points to more favorable developments in 1929.

There were 66 wells completed in 1928 in New Mexico, of which 45 were dry and abandoned and 6 were gas wells. This compares with 113 completions, of which 66 were dry and 6 were gas wells, in 1927. The initial production of new wells in 1928 was 2,214 bbls., compared with 2,994 bbls. in 1927. The number of active operations varied little during the year and averaged around 100. Sixty-eight per cent of the completions in 1928 were dry, compared with 58 per cent in 1927.

Several areas in Lea County came in for attention in 1928. One of the most active of there was in the Jal district to the north ow the Winkler County, Texas, boundary, which came into prominence in the fall of 1-927 when the Texas Production Co.'s No. 1 Rhoades, NE NW Section 22-26-37, was completed as a gas well at 3,216 feet with an initial production of 22,000,000 feet of gas and 120 bbls. of oil. This well was on a high which appeared to extend 4 to 5 miles in a southerly direction into Winkler County. In 1928 the Marland Production Co. drilled its No. 1 Eaves, SW NE Section 19-26-37, to 3,000 feet and had a flow of 90,240,000 feet of gas at 2,968 feet. This well is 3 miles west and half a mile south of the Rhoades well. It has not yet been completed as efforts have continued for several months to clear the hole and drill deeper in hopes of getting oil. The Marland company then went 6 miles to the north and had 50,000,000 feet of gas at 3,010 feet in its No. 1 Sholes, NW cor. SW Section 19-25-37. Likewise, this well has not been completed on account of mechanical difficulties, though a rotary has been installed to drill below the present bottom at 3,030 feet. One and one-half miles to the west of the Eaves well, Cranfill & Reynolds drilled to 3,500 feet in their No. 1 State, SE NE Section 23-26-36, and abandoned it as a dry hole, having missed the gas and running into sulphur water at 3,465-90 feet. The Midwest Refining Co. went 2 miles to the northeast of the Rhoades well and drilled its No. 19 Farnsworth, SW Section 12-26-37. This well is bottomed at 3,877 feet and not yet completed, but failed to get the gas found in the other wells. However, it had some good shows of oil along with small quantities of sulphur water. The Marland Production Co.'s No. 1 Seideman, SW cor. Section 4-2-36, located 10 miles to the northwest of the Rhoades well, encountered hot sulphur water at 4,121 feet, and was abandoned at 4,125 feet. Another well which has an important bearing on the location of the high is the Skelly Oil Co.'s No. 1 Joyner, NE cor. SE Section 26-25-36, one and one-half mile southwest of No. 1 Sholes, which is bottomed at 3,259 feet with a hole full of fluid at last reports of which 13 per cent was oil. The horizon is being cased off to continue drilling.

A Large Structure

These wells indicate the presence of a high approximately 15 miles long and 7 to 8 miles wide that may reasonably be expected to yield large quantities of gas and probably develop into an important oil pools. Several wells are drilling within the boundaries thus outlined, and one of these, the Texas Production Co.'s No. 1 Cagle, NE SW Section 9-26-37, had a flow of 80,000,000 feet of gas at 3,194 feet and is still drilling.

The Hobbs high, where a new pool has been opened, the only one of importance found in the State in 1928, is approximately 40 miles due north of the Jal district just described. The discovery well was drilled by the Midwest Refining Co. in its No. 1 State, NE cor. Section 9-19-38. It is the only well drilled to completion on the structure, though the No. 1 Hughes, Section 27-19-38, has reached a depth below 4,000 feet. The State well was drilled to 4,221 feet and plugged back upon showing signs of water to 4,214 feet, where it average 696 bbls. daily on a 15 days' test It was subsequently deepened the second time to 4,245 feet and the water increased, following which it again was plugged back. The only immediate drilling in sight is a location by the Ohio Oil Co. a mile to the southwest of the discovery.

The Empire Gas & Fuel Co. drilled its No. 1 State, NE cor. NW Section 8-21-35, in the San Simon district, 20 miles southwest of the Hobbs discovery, and completed it at 3,835 feet. In November it made 868 bbls. of oil and 900 bbls. of water in 12 days, indicating that it is on the edge of a high. The company has gone 1¾ miles west and half a mile south of this well and is drilling its second test. About 5 miles to the northeast of the Empire's No. 1 State, the Gypsy Oil Co. drilled its No. 1 Ramsey in the SW cor. Section 34-21-36 to 3,959 feet and encountered sulphur water at 3,907-10 feet. It is being plugged back to one of the several gas horizons, one of which showed as much as 30,000,000 feet of gas. Oil shows also were encountered. This company has moved 3 miles to the northeast and is starting another test.

Owing to the lack of surface evidences of structures in Lea County, considerable drilling is necessary to work out the highs, though geophysical instruments have been used extensively as an aid to the geologists. Abandoned wells, therefore, play an important part in eliminating certain areas and narrowing down the territory which may contain the pool or pools which the operators are confident will be found somewhere in the county. The more important tests abandoned during 1928 were the Marland Production Co.'s No. 1 Roberts, SW cor. Section 20-23-35, at 3,949 feet; the Exploration Co.'s No. 1 Record, C NE Section 25-19-35, at 4,556 feet; C. E. Reynolds Drilling Co.'s No. 1 Anderson, C SE Section 29-13-37, at 5,235 feet; Marland Production Co.'s No. 1 Danciger, SW cor. Section 7-23-36, at 4,035 feet; Marland Production Co.'s No. 1 King, NE cor. Section 26-25-32, at 4,325 feet; and

Marland Production Co.'s No. 1 Slattery, SW cor. NE Section 7-22-34, at 4,155 feet.

There were only six or eight wells drilled during the year in the proven area of the Artesia Pool in Eddy County, but production held up fairly well under the circumstances, the runs decreasing from around 1,450 bbls. daily at the beginning of the year to 1,100 at the end of the year. There was some wildcatting extending out from the proven area, but no important extensions were developed.

Deep Test Dry

In the Caprock district the Pueblo Oil Co.'s No 2 Gessert, NE NW Section 1-17-31, was abandoned at 4,412 feet after missing the pay, and the Texas Production Co.'s No. 1 Compton, NE cor. SE Section 9-16-31, located 3½ miles northwest of the same company's No. 1 Roberts, a gas well, also was a failure and was abandoned at 4,381 feet. In the Twin Mounds Pool, 15 miles southeast of the Artesia Pool, George F. Getty, Inc., completed one well in the NW cor. Section 24-20-29, which swabbed 430 bbls. first 24 hours from a total depth of 1,738 feet, and another in the SE SW Section 13-20-29, which made 430 bbls. initial. Same company's No. 1 Nicholas, NW NW Section 25-20-29, was completed with an initial production of 70 bbls. at a total depth of 1,384 feet. The wells are shut in for lack of pipe line facilities. Other Eddy County wildcats completed, all of which were abandoned, were Hammond and others' No. 1 Miller, SE SW Section 15-16-25, Cottonwood district, abandoned at 1,810 feet; Marland Production Co.'s No. 1 Garner, NE SW Section 34-23-31, abandoned at 4,410 feet; Snowden & McSweeney's No. 1 Lawrence, NW cor. Section 35-20-27, abandoned at 1,738 feet; and Gates, Holman & Rehn's No. 1 Murdock, SW cor. NE Section 7-21-28, abandoned at 2,071 feet.

Wildcatting in Chaves County

Chaves County had three tests drilled to completion and abandoned during the year, these being the Buffalo-Roswell Oil Co.'s No. 1 State, SW cor. Section 24-11-27, abandoned at 4,269 feet; McQuigg & McQuigg's No. 1 Neis, C NW Section 7-5s-29, abandoned at 3,515 feet; and the Arena Oil Co.'s No. 1 Wilkins, NE NW Section 18-13-31, abandoned at 3,760 feet.

Curry County had two failures in Steinberger and others' No. 1, C NE Section 21-3n-35, abandoned at 3,850 feet; and the Clovis Oil & Gas Co.'s No. 1 Hoskins, C NE Section 21-3n-36, abandoned at 4,002 feet.

Work in Northwest

There were no important discoveries made during the year in the northwestern part of the State though drilling continued intermittently throughout the year, especially in San Juan and McKinley Counties. The only drilling in the proven areas was the continuation of work on the Continental Oil Co.'s test to the Pennsylvanian on the Rattlesnake Dome, which was drilling below 6,300 feet at the end of the year. In McKinley County tests abandoned included the Paramount well on Section 15-16-10, on the Vogt structure; the Benedum-Trees well on Section 19-17-9, on the Ambrosia Lake structure, abandoned in the Dakota at 2,925 feet; Jenkins Oil Co.'s No. 1 Hanet, Section 1-16-9, on the East Vogt Dome, abandoned at 1,500 feet; the Continental Oil Co.'s No. 1 Santa Fe, Section 9-17-7, on the Carica Dome, through the Dakota at 3,190 feet; and several wells upon the edge of the Hospah Dome which failed to extend the productive area, and one deep test in the Seven Lakes Field. In San Juan County, drilling continued in the several areas which have shown some small production, but these mostly were shallow wells. The Union Oil & Mining Co.'s No. 1 Pine, Section 8-29-9, in the Blanco district, was drilled to 4,030 feet and abandoned, and the Huntington Park Oil Co. had some gas in its No. 1, Section 29-30-9, in the same district, which reached a total depth of 4,555 feet. The Midwest Refining Co. drilled a test on the Stony Butte structure in Section 36-22-14, and wound up at 3,032 feet with a water well flowing 5,000 bbls. per day, though it had some good shows at higher levels. The Hogback Dome, operated by the Midwest Refining Co. is marketing only such oil as is needed and has 250 bbls. a day shut in, and the Rattlesnake Dome, while increasing during the year the quantity of oil marketed, still has 1,000 bbls. a day shut in. There was no new drilling on either structure during the year.

NEW MEXICO

Summary of Wells Completed in 1928

County—	Comp.	Prod.	Dry	Gas
Chaves	3	0	3	0
Curry	2	0	2	0
Eddy	22	1,315	10	1
Guadalupe	1	0	1	0
Lea	12	899	3	0
McKinley	10	0	10	0
Quay	2	0	2	0
San Juan	10	0	5	5
Torrance	1	0	1	0
Union	1	0	1	0
Valencia	2	0	2	0
Total 1928	66	2,214	45	6
Total 1927	113	2,944	66	6
Difference	47	730	21	0

Completions by Months

Month—	Comp.	Prod.	Dry	Gas
January	7	280	3	2
February	4	20	2	0
March	6	85	3	1
April	5	430	3	1
May	7	0	7	0
June	9	49	6	0
July	3	0	3	0
August	5	25	4	0
September	3	175	2	0
October	3	250	1	1
November	5	200	4	0
December	9	700	7	1
Total 1928	66	2,214	45	6

Utah

Exploration for oil in Utah continued on a small scale in 1928 without the opening of any producing pools. There were only 12 completions reported for the year, of which 5 were gas wells. The remaining seven were dry and abandoned. Four of the five gas wells completed were on the Cisco fold in Grand County, where the Crystal Carbon Co. operates a carbon black plant, and were drilled to augment the gas supply. The only other gas well was on the Ashley Creek Dome in Uinta County, where the Midway interests have been exploring for oil in several tests. At the end of the year there were 35 operations, of which three were rigs. Some of the wells listed are shut down but have not been abandoned.

The Ashley Creek structure in Uinta County was first tested in 1925 by the Midwest Refining Co. for the Utah Oil Refining Co. in its No. 1, SW NW Section 23-5s-22e. The Dakota was barren, but it had an initial production of 60,000,000 feet of gas in the Morrison at 1,685 feet. The Sundance, which lies immediately below the Morrison, subsequently was proven productive in northwestern Colorado, and it was decided to make a deep test at Ashley Creek. No. 2, NW NE SW Section 23-5-22, was abandoned at 708 feet in the Frontier when the log showed that it was low on the structure. No. 3, SW NW of Section 23, was drilled in 1928 to a total depth of 2,720 feet and tested the Sundance, the sand making 20,000 bbls. of water per day. The hole was then plugged back to 1,682 feet and completed as a gas well with a production of 5,500,000 feet. The well had a show of oil. The Ashley Valley Oil Co. and the Utah Oil Refining Co. then started a well in the SE NW Section 22-5s-22e to test a fault block on the downthrow side and was abandoned at 2,100 feet with only a little gas in the upper measures to reward the efforts.

The Midwest Exploration Co. drilled a test on the Duchesne structure in Duchesne County in its No. 1 Early, Section 13-4s-6w, and abandoned it at 4,760 feet in shale showing some water. This well explored the Tertiary formation but failed to find any sands, and it was estimated that there was at least 2,000 feet of that formation below the point at which the drill stopped.

The Utah Southern Oil Co. completed a test on the east anticline in San Juan County in its No. 1 Canyon, Section 27-41-19. It had an aggregate flow of 70,000,000 feet of noninflammable gas in sands in the Upper Pennsylvanian at 640 to 1,000 feet and was abandoned at 1,822 feet, having encountered mica schist at 1,764 feet and granite wash at 1,767 feet.

Abandoned at 5,345 Feet

The Embar Oil Co.'s No. 1 Big Six, Section 34-25-21, on the Moab structure in Grand County, was abandoned at

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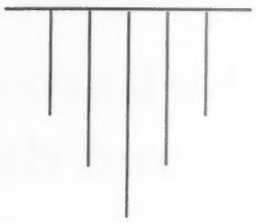

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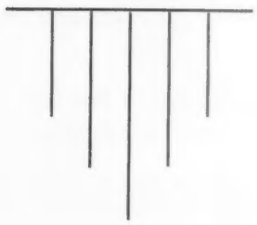

Lone Star Gas
Company
Dallas, Texas

5,343 feet. This well was started several years ago and revealed the first subsurface information upon which the geology of the Colorado River structures farther to the south was based. It had a number of shows of oil and gas, but no commercial production and did not encounter the thick salt beds found in the Colorado River domes.

The Boulder Knoll Oil & Gas Co., drilling on a dome near Monticello in San Juan County, in Section 17-34-25, encountered a substantial flow of gas at 3,460 feet in the Shinarump conglomerate during the summer, the gas continuing through a column of water up to the present time. Operations have been at a standstill for six months, but the company plans to run a string of 6¼-inch casing to shut off the water and drill deeper. The Pennsylvanian appears to be too deep at this location for the hole to be continued to that horizon.

The Texas Production Co. drilled a test on the Sweetwater structure in Wayne County, in its No. 1 Shipley, Section 5-27-14, but the hole was in bad shape and was abandoned at 2,885 feet without reaching the objective. Another test may be drilled.

The Continental Oil Co.'s wildcat on the Boundary Butte Dome in San Juan County, in Section 22-43-22, continued drilling during the year and is below 4,400 feet and has had nothing important since it had a show for 25 bbls. at 1,590 feet in the Shinarump conglomerate. The Utah Southern Oil Co. and Moab Consolidated Oil Co. are jointly drilling tests on the Cane Creek and Salt Valley Domes in Grand County, there being located on the flanks of the domes. The other drilling wells are in widely scattered areas and have not yet reached depths that are conclusive as to results.

UTAH

Summary of Wells Completed in 1928

County—	Comp.	Prod.	Dry	Gas
Box Elder	2	0	2	0
Duchesne	1	0	1	0
Grand	6	0	2	4
San Juan	1	0	1	0
Uintah	1	0	0	1
Wayne	1	0	1	0
Total 1928	12	0	7	5
Total 1927	14	0	13	1
Difference	2	0	6	4

Completions by Months

Month—	Comp.	Prod.	Dry	Gas
January	0	0	0	0
February	0	0	0	0
March	0	0	0	0
April	4	0	2	2
May	0	0	0	0
June	2	0	1	1
July	2	0	1	1
August	0	0	0	0
September	0	0	0	0
October	2	0	2	0
November	0	0	0	0
December	2	0	1	1
Total 1928	12	0	7	5

Montana

Two outstanding points in the history of 1928 in Montana were the discovery and development of the Pondera and Bannatyne Fields in Pondera and Choteau Counties, respectively. While the first wells found oil in these two pools in the fall of 1927, the main development was held off by the winter and did not start up until spring.

Bannatyne did not turn out as well as Pondera. Twelve dry holes were drilled around the edges of this new pool and now the development work is confined to the area enclosed by these wells. The length of this field was undetermined for a time while the dry holes along the flanks easily showed where the edge of the pool laid. As the year 1928 closes, the Bannatyne Field is practically defined in every direction and its area will hardly be more than a square mile or two.

The Cat Creek Field in 1928 was the quietest of Montana's oil areas. Two attempts to find new pools on the edge of this field were failures, but the production fell off very little for the year. The field is now regarded as a production proposition entirely and no extensions there are looked for.

Big Wells in Sunburst

The Sunburst Field in Toole County, near the Canadian boundary, provided the high lights in the news during the past year. Last January, after several months of quiet, Sunburst became the high spot in Montana oildom when the new Wilcox Pool was brought in by the Barnhill Corey well that had been making water and suddenly started on oil and gradually increased until it went wild and flowed 18,000 bbls. daily over the country side, to be caught in coulees and gulches in hastily improvised earth tanks.

This was the largest strike for that field and for the State, and still holds the Montana record as a freak producer. Other wells drilled in that part of the Sunburst Field showed the same freakish tendency to change from oil to water or vice versa, and in June the same company had another gusher that started off wild at 10,000 bbls. the first 24 hours.

Owing to a long period of inactivity in Sunburst, these big wells created a boom that boosted land prices to unheard of values. Prices of $550 per acre were quickly paid for leases and some demands for as high as $700 per acre were met by investors.

Record Gas Well

In the gas-producing area of Sunburst Field, the record for Montana in gassers was set by the Kalispell Baker interests with a well that made 57,000,000 feet daily. This is the largest gas well ever found in Montana.

In the southern part of Montana, the Ohio Oil Co. has a drilling well that is also a commercial gas well and the discovery well of a new pool. This well is on the Dry Creek Dome in Stillwater County, and the Ohio Oil Co. is preparing to connect the well with its Billings gas line to help serve the city of Billings with gas, as the year 1928 closes.

Electrification Introduced

One of the greatest changes in Montana oildom was the start of the electrification of the oil fields. The Great Northern Utilities Co. started construction on a $500,000 electric power plant that will supply the towns in that part of northern Montana and the Sunburst Field. In the Pondera Field, transmission lines crossed the field and the power was ready when the field opened. However, as few contractors were aware of this, steam outfits were moved in so that there is still a demand for fuel oil and water. During the fall and winter of 1928, the use of electric powers was increased.

The Fifty-Six Petroleum Co. bought into the Bannatyne Field in the middle of the summer, through the purchase of the Genou Oil & Gas Co.'s 320-acre tract in that field, with its two producing wells.

Pipe Lines From Pondera

The first pipe line from the Pondera Field to Conrad was laid in the summer of 1928 and offered transportation for that oil that had been collecting in storage for the past months. Extensions to the field failed to develop as expected for all the wells that jumped a mile or two away expecting to find oil developed hot water, but the operators on the proven area were heartened in August by the Continental Development Co. bringing in a producer good for 300 bbls., the record well for Pondera up to that time. Later, the same company brought in its No. 4 Gjullin that started off at 500 bbls. and is the record well for Pondera for the year 1928.

The Pondera crude found a market in Canada mainly. It is being sent by pipe line to Conrad and then by rail to Regina. There is considerable competition in northern Montana for crude as the small refiners are unable to find enough to supply their wants.

In the fall of 1928 the first extension of the Pondera Field was discovered by the Sontag Miller well on Section 11-27-4 and started as a 60-bbl. producer.

Crude Supply Short

In November the crude supply began to run short as the large buying companies were tying all the oil up with contracts and the Maple Leaf Refining Co. of Canada started offering premiums above the market. This company posted a premium of 20 cents over the market for Sunburst crude, which made the cost of crude to that company $1.95 per barrel.

The Midway Refining Co. entered the Pondera Field in the fall of 1928 through the purchase of the 280-acre lease of the Montana Pacific Oil & Gas Co. The

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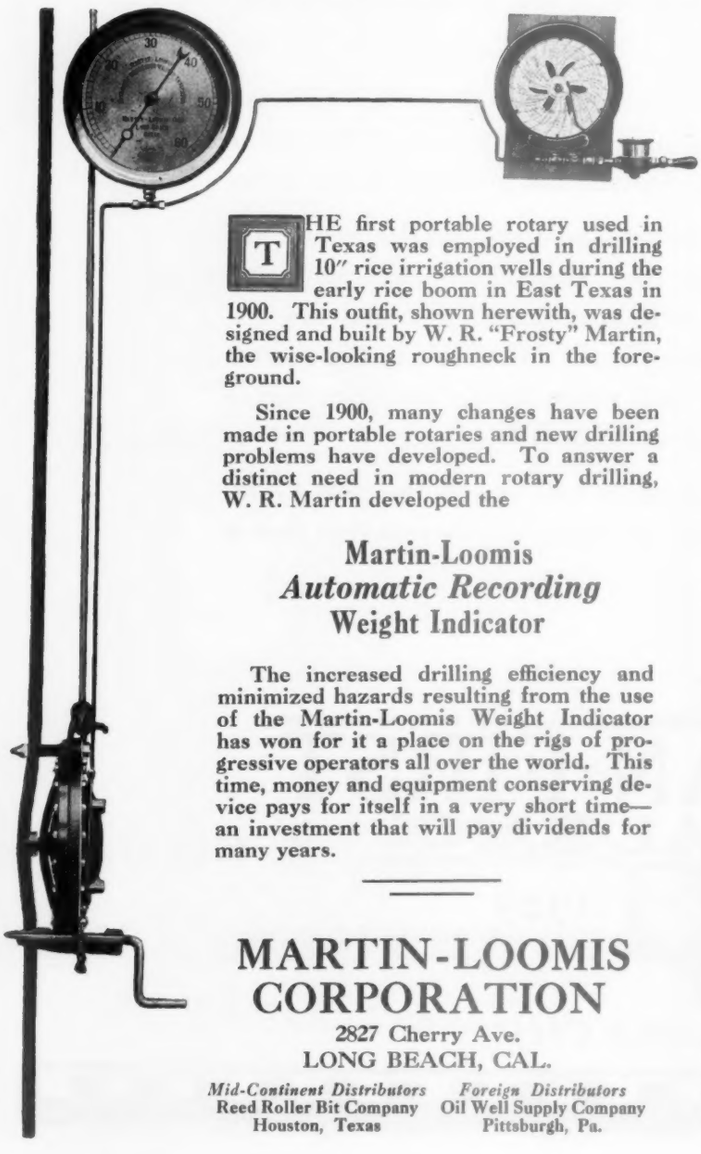

THE first portable rotary used in Texas was employed in drilling 10″ rice irrigation wells during the early rice boom in East Texas in 1900. This outfit, shown herewith, was designed and built by W. R. "Frosty" Martin, the wise-looking roughneck in the foreground.

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Midwest is reported to have made a contract to drill 12 wells on this tract.

Royalty Oil at Big Premium

The contract for the United States royalty oil produced in the Cat Creek Field was declared void and the Lewistown Oil & Refining Co. was thereby cut out of a crude supply. Bids were asked and the Yale Oil Corp. of Miles City was the successful bidder with a price of $1 per barrel above the posted price for oil 39 gravity and above.

The Montana state royalty oil from various fields was placed at auction by the State and the first bids were all turned down as being too low. Later the royalty oil was awarded to the Shelby Pipe Line Co. in the Sunburst Field and to the Conrad Refining Co. in the Pondera Field. This contract amounts to about 80,099 bbls. and in 1927 had a value of $140,900.

Freaks in Sunburst

Sunburst Field kept the record for freak wells all during 1928. In August the Tom Davis well on Section 10-35-2 came in as a small producer of about 75 bbls. A few days after it started pumping the well broke loose and made 1,600 bbls. in 60 hours.

The Roy C. Tarrant well found a new pool in the northeast part of the Sunburst Field, ahead of proven territory and a big well came in on Section 7-34-1, where the Dakota Montana Oil Co. found a 1,500-bbl. gusher in its No. 15. On Section 9-34-1, the famous Baker Barnhill wells started flowing oil after flowing water for some days. On the other hand the Hannah Porter interests brought in a dry hole adjoining a big gusher and right in the middle of gusher terrtitory.

To cap the climax of freak wells, the Bethel Oil Co. brought in what was thought to be a great gusher in Sunburst. The well then started making oil and water and the gas disappeared entirely.

The Hannah Porter interests found a new well and extended the southeast part of the Sunburst Field when the well of that firm came in with an initial production of 300 bbls. and 7,000,000 feet of gas. During the same week, the Campbell Morton well on Section 13-34-2, in the Sunburst Field, which had been making 75 bbls. started off at 1,402 bbls.

The Book interests of Detroit bought the Ihde lease in Cat Creek Field from the Fifty-Six Petroleum Co. for $250,000. This lease has paid the Fifty-Six Petroleum Co. around $3,000,000 since the Cat Creek Field came in.

MONTANA

Summary of Wells Completed 1928

District—	Comp.	Prod.	Dry	Gas
Cat Creek	6	80	3	0
Kevin Sunburst	223	15,709	77	45
Pondera	77	6,491	7	1
Teton County	23	391	13	0
Liberty County	3	0	2	1
Fallon County	8	0	1	7
Choteau County	2	0	2	0
Garfield County	1	0	1	0
Fergus County	1	0	1	0
Toole County	5	0	5	0
Pondera County	4	0	4	0
Big Horn County	1	0	0	1
Stillwater County	1	0	0	1
Petroleum County	2	0	2	0
Hill County	1	0	1	0
Cascade County	1	0	1	0
Total 1928	359	22,601	120	56
Total 1927	493	29,446	196	54
Difference	134	6,845	76	2

Completions by Months

Month—	Comp.	Prod.	Dry	Gas
January	11	1,880	4	2
February	9	113	7	0
March	12	160	6	2
April	28	5,426	8	7
May	25	1,700	3	5
June	46	1,217	15	8
July	28	1,012	19	6
August	33	2,504	12	5
September	51	3,186	16	6
October	31	2,000	9	3
November	40	1,433	7	6
December	45	1,970	14	6
Total 1928	359	22,601	120	56

NEW POOLS OPENED IN PENNSYLVANIA AND OHIO

(Continued from Page 154)

ing discovered a new pool. There still remains a lot of not fully developed territory that can be drilled for light pumpers. The possibility of discovering a new deep sand pool, such has been found in Harrison Township, Perry County, is somewhat remote.

West Virginia

The West Virginia fields had a dull year, completing more gas wells than all producers. About the middle of May there was quite a little flurry in Green district, Wetzel County. R. H. Worden & Co. drilled into the Big Injun sand a test on the O. T. Midcap farm. The well had an initial production of 35 bbls. an hour but did not hold up for any considerable time. Nevertheless, a large amount of test work was started in every direction from the Midcap producer. One after another came in dry and when all had been completed none showed an extension of the producing formation from the Midcap location. In the end the Midcap well proved to be nothing more than a freak and investors in leases in the immediate vicinity suffered a disappointment and a heavy financial loss.

There was no other discovery, calling for special mention. Both the oil and gas companies were active in developing gas territory in Kanawha, Boone and Lincoln Counties. The result of this activity was that more gas was produced than could be marketed. The mild winter weather up to the close of the year made the demand unusually light.

By the close of the year many of the old companies that had been idle during the depression came back and started new work where there was still room for new locations in the old fields. There is still room for a considerable amount of this kind of work. At close of the year it looked favorable for extending the producing formation from Roane County, a county that has previously had but very little production.

Southwest Pennsylvania

Dullness prevailed in the Southwest Pennsylvania fields, Greene County completing more wells than all others combined. The total amount of new production was 1,223 bbls. and nearly all furnished by three wells in Butler County. Late in September the Phillips Gas & Oil Co. drilled in a test well on the John Harvey farm in Buffalo Township. The well had an initial production of 25 bbls. an hour and revived interest in a section that had not been expected to produce oil, for the reason that it was drilled for gas. Other work was started by the same and other companies and November 15, the Phillips Gas & Oil Co. drilled a well on the W. C. McFarlan farm. It started to flow at the rate of 35 bbls. an hour and by the close of the year was holding up at better than 200 bbls. a day, the Harvey farm well having dropped to 12 bbls. a day.

The next well drilled in was the same company's test on the Susan J. Penrose farm. This well came in near the close of the year and started to flow at the rate of 25 bbls. an hour. About the same time that this well was completed a gasser was drilled in on the J. F. Trees farm and a dry hole on the Charles J. Heck farm. Three wells are now drilling and when completed will show if an extension can be had from the three producers.

LOWER EASTERN FIELDS
Completions by Districts

	Comp.	Prod.	Dry	Gas
Southwest Pa.	138	1,223	35	60
West Virginia	735	2,444	131	404
Southeast Ohio	779	17,898	153	156
Total 1928	1,652	21,565	319	620
Total 1927	1,950	16,618	409	670
Difference	298	4,947	90	50

Completions by Months

January	135	860	29	55
February	129	1,927	24	55
March	111	1,204	22	40
April	104	5,416	22	35
May	112	2,206	23	37
June	148	2,591	31	60
July	131	1,366	32	48
August	140	2,214	26	40
September	145	1,358	28	49
October	138	1,248	18	52
November	179	2,086	35	79
December	180	1,089	29	70
Total 1928	1,652	21,565	319	620
Total 1927	1,950	16,618	409	670
Difference	298	4,947	90	50

Eastern Producers Encouraged

Producers of high grade crude in the Eastern fields can go into the new year much encouraged on account of the high-

Pioneer Long Electric Welded Oil Line

Texas Pipe Line Co. Nearing Completion of Extension of Its System Into the Panhandle District

By James H. Dameron

FORT WORTH, Tex., Dec. 10.—Pioneering in the field of building long electric welded pipe lines, the Texas Pipe Line Co. is nearing completion on the first electric welded oil transportation system to be built. So far, the tests made on the main line systems have proven entirely satisfactory.

Early in July, 1928, the transporting company began work on the extension of its trunk line system into the Texas Panhandle. To handle adequately crude from this section additional extensions to the trunk system in other parts of the state were required.

Running south from Lefors in Gray County, 155 miles of 8-inch line is being laid to Electra where the line ties into the main line system. This line is being electric welded and will have a daily capacity of 17,000 bbls. A steam station is located at Lefors consisting of two 300-horsepower boilers and one 18½ by 6¾ by 24 pump... working tanks.

Booster station is ... line near Kirkl... It will be a... ing of one 300 ... connected to on... duplex power p... unit was installe... line station consi... horsepower Diesel engi... ed to a 6 by 24 h... up.

Thirty-one miles of 8-i... n Olney to South Ben... acity of 12,000 bbls. ed. One 10,000-bbl. t... the Olney station and ... ditional tankage was ... end. Additional units co... 0 horsepower Diesel en... ⅛ by 12 pump to each ... ilt at Breckenridge an... er with a 20,000-bbl. ... kenridge station.

An electric powered bo... installed on the Range... at Millsap. This statio... e 250 horsepower motor... ch, three-stage pumps and ... working tank.

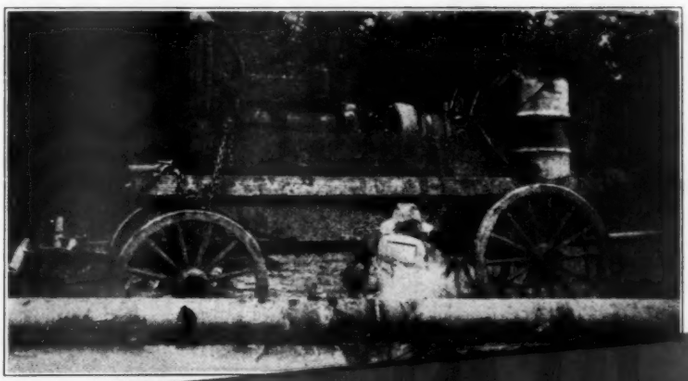
Because of the increased l... itional pumping equipme... ed at Fort Worth and ... . Fort Worth station wa... h a 340 horsepower Diesel ... 6¼ by 24 horizontal du... e three 340 horsepower ... n and three 6⅛ by 24 ... lex pumps were added to ... n.

Capacity Increased

The capacity between Da... rsicana was increased 10,... ly to bring the total line ca... en those two points to 50,... was accomplished by the ... of 34 miles of 8-inch electri... e from Dallas to Reagor ... hich ties into a loop line at ... prings and which forms an a... e between Dallas and Corsica...

At the Corsicana station ad... ional was installed and cons... 0 horsepower Diesel engines ... nected to 6 by 24 horizontal ... . A 146-mile 8-inch electric ... with a daily capacity of 11,00... being built to San Augustine ... here one 40,000-bbl. working t... ing built. This line will carry ... in line's load on south to the ... ies into the main line out of ... isiana and Arkansas which ... on the coast.

In all, this constru...



age roll weld per welder is now ... 25 daily. When welding was fir... menced slower time was made beca... was the first line of that type w... projected and consequently conside... organization work was necessary. ... bell hole welders are averaging abou... welds per day at the present time.

An exception to the average bel... welding time is found in the record ... by one of the bell hole gangs rece... This gang comprised of three weld... completed 13,900 feet of line in one ... Pipe in this particular section of ... varied in length, some being 60-foot ... and the remainder was 30-foot pipe. ... ever, the welders made 60 bell hole... to reach an average of 20 each fo...

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OWENSBORO, KY.

er market for crude of the Pensylvania Grade. All through the year the refineries in Pittsburgh and vicinity took all of this grade of oil offered them and at times could not get enough to meet their requirements. There is but one discouraging feature, the scarcity of new producing territory.

Random Notes

During the year no extremely deep wells were drilled or were drilling in the Southwest Pennsylvania, West Virginia or Southeast Ohio fields. So many efforts had been made in past years and proved failures discouraged any effort along that line.

The last attempt made to find a producing formation below that ever discovered was made by the Reserve Gas Co., on the Smith Brothers farm, located in Union district, Tarrant County, West Virginia. After reaching a total depth of 6,824 feet, the tools were stuck in the hole and after a protracted fishing job that proved futile they were abandoned early this year.

Many Old Wells Drilled Deeper

All through the year drilling old wells deeper in the old fields was a feature and proved more profitable than starting new work. Pumping air or gas into the producing formation in some localities proved satisfactory and brought an increased production to wells that were no longer profitable producers.

BIG GAS EXPANSION IN THE LA.-ARK. AREA

(Continued from Page 163)

at 3,012 feet got 100 bbls. production in the first true sand in the upper Trinity series that has been found in the parish. The well was on the south edge of approximately a square mile of territory bordered on the north, east and west by production from various formations at levels that had been barren in all those horizons. The parish was normally active, leading all others in the northern part of the State in number of completions of which 73 were producers with an initial 4,307 bbls., 6 gassers and 57 failures. The Greenwood gas district, which incidentally passed from the stage, accounted for a good many of these though there was a fair crop of wildcats with the usual results and proven areas were not without their quota of failures.

Haynesville, Homer, Bellevue, Cotton Valley shallow stuff, Red River and Urania, Stephens, Lisbon and El Dorado were inactive, or practically so. Smackover had 25 completions of which 15 were producers with 522 bbls., 3 gassers with 12,700,000 feet and 7 dry.

After Smackover, Nevada was the most active area with 15 producers having 771 bbls. initial, 4 failures and 1 small gasser.

Union County, with its Champagnolle, of course led the whole division in completions, 90 per cent of which were in the new field. In the county as a whole there were 279 completions, 154 producers with 75,709 bbls. initial, 18 gas wells with 508,000,000 feet open flow and 138 failures.

Deep Drilling a Feature

Encouraged by Pine Island and Cotton Valley, deep drilling 3,500 to 5,000 feet and, in two cases 6,000 feet, became general throughout north Louisiana in proven areas and in wildcat territory where wildcatting to shallow depths during the last 10 or 15 years had failed to find production. However, not all the wildcat drilling which produced the greater portion of the 460 failures charged off during the year were deep holes. Deep drilling in proven areas was confined almost entirely to Pine Island and Cotton Valley with one or two in Bellevue, two in Pleasant Hill and one in Haynesville which was under way when the year ended, one or two in Richland and three or four in the Monroe district.

Measured by old standards, all Champagnolle drilling, 3,000 feet to 3,200 feet, was deep drilling and the discovery of production in and below the red beds in this pool prompted the widespread wildcatting that has prevailed in southeastern Arkansas during the last half of the year and which has so far proved unproductive. A few tests were drilled in El Dorado territory and in Smackover, one in Lisbon and one now under way in Nevada County proven area. There was also much deepening of old wells from shallower depths and considerable repair work entailing adding a few feet more hole to old producers in both Louisiana and Arkansas fields.

A deep hole was started in Homer Pool and two Claiborne Parish wildcats under way at the year's end were scheduled for 3,500 to 4,500 feet. Five wells went 5,000 feet and deeper, only one of which, under way at the end of the year, showed any promise. This was Dixie Oil Co.'s No. 92 Dillon in Section 13-21-13, Pine Island, which showed 5,000,000 feet of gas at 6,100 feet and is waiting for a string of flush joint 4½-inch casing in order to set and make a test. This is so far the deepest show found in Louisiana but not the deepest hole. So far as known the deepest hole in the State at present is Dixie's No. 1 Jenkins in Section 9-12-11, DeSoto Parish, about 10 miles north of Pleasant Hill production, but it has only a scant margin over the Dillon, its total depth being 6,149 feet.

Three miles northeast of Pleasant Hill production Plymouth Oil Co. drilled No. 2-A Logan in Section 23-10-12 to 5,063 feet but beyond 150,000 feet of gas at 4,263 feet got no shows. Ohio Oil Co. drilled No. 25 E. K. Smith in Section 12-21-15, a mile east of Pine Island deep production, to 6,001 feet without success. Numerous wells in Pine Island were drilled to between 4,000 and 5,000 feet during the year but failed to develop anything below 3,800 feet. Magnolia Petroleum Co. drilled No. 1 Lee in Section 16-22-8, 4 miles south of Haynesville production, to 5,100 feet.

A list of the deeper holes in Arkansas, below 3,450 feet, there being quite a number more finished at and slightly below that depth, shows: E. M. Jones' No. 3 Crain, Section 2-17-14 (Champagnolle), an old salt water hole, 4,014 feet; Arkansas Natural Gas Co.'s No. 1 Wharton, Section 7-8-12, Pope County, 3,900 feet; Barton and others' No. 1 Doss, Section 16-17-14 (Champagnolle), 3,447 feet; Skelly Oil Co.'s No. 1 Miles, Section 4-17-14 (Champagnolle), 3,472 feet; Marr & Hooser's No. 1 Horton, Section 12-18-15, El Dorado east side, 3,508 feet; Ohio Oil Co.'s No. 1 Southern Lumber Co., Section 15-16-10, Bradley County, 3,609 feet; Pure Oil Co.'s No. 1 Gaddy, Section 13-17-14 (Champagnolle), 3,804 feet; Arkansas Natural Gas Co.'s No. 1 Tate, Section 4-9-11, Cleveland County, 3,626 feet in igneous rock; Garrett-Modisette Drilling Co.'s No. 1 Murphy, Section 30-17-17, Union County, 3,515 feet; Amerada Petroleum Co.'s No. 1 Matlock, Section 10-12-13, Calhoun County, 3,754 feet, and Atlantic Oil Producing Co.'s No. 1 Moffat, Section 28-16-8, Ashley County, junked at 3,951 feet.

Gas Field in Johnson County

The only positive results of the wildcatting that accounted for 90 per cent of the 460 dry holes completed in the division during the year were the establishment of the Johnson County gas field near Clarksville, Ark., and the tapping of a prospective gas field in East Carroll Parish and an equally prospective oil pool in Sabine Parish, Louisiana. Arkansas Natural Gas Co. completed six gas wells with 34,701,000 feet open flow and built a pipe line from Little Rock and is drilling two more. Palmer Corp. drilled most of the six completions in East Carroll Parish, one of which was its No. 1 O'Brien in Section 7-19-11, completed May 5, gauging 51,119,000 feet of gas at 1,040 pounds and 1,000 bbls. salt water from 5 feet of sand, total depth 2,354 feet and has been engaged since in drilling structure tests. The Sabine well was R. L. Gay's previously referred to. One other northeast Louisiana wildcat, The Texas Company's No. 1 Myersbin, Section 15-22-7, Morehouse Parish, showed encouraging symptoms of production but was lost when a short string of 4½-inch pipe failed to keep out the water. It cored a sand showing oil at 2,896–2,906 feet but the test showed only salt water. Then again it cored sand from 2,919-39 feet which showed a high percentage of saturation. The short string was cemented but failed to hold, 3,500

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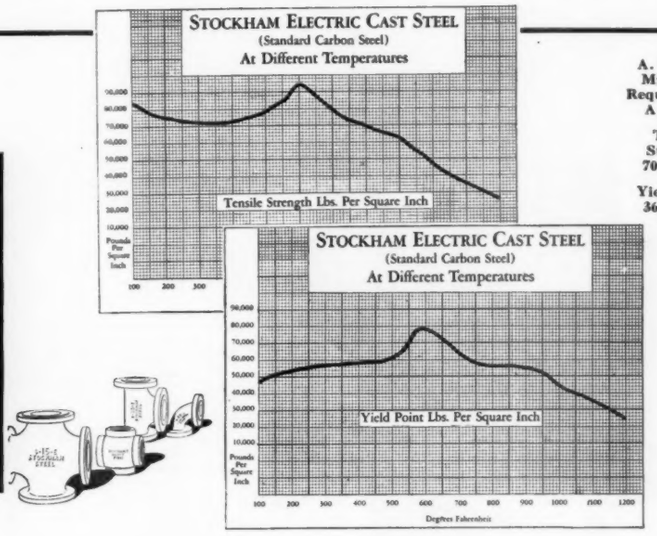
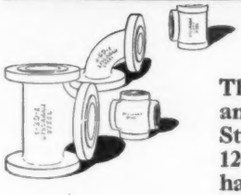


A. S. T. M. Minimum Requirements A 95-28 T

Tensile Strength 70,000 lbs.

Yield Point 36,000 lbs.



The charts above show the average tensile or ultimate strength and the yield point or elastic limit of many tests of Stockham Steel giving its behavior under temperatures between 100° and 1200° F. These charts show the consistent high strength of Stockham Steel, well above the A. S. T. M. minimum requirements, giving a wide margin of safety in high temperature or high-pressure pipe lines.

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bbls. of salt water being the result when the plug was drilled. Two or three more were drilled in the vicinity without result and two more are under way.

NORTH LOUISIANA
Completions by Months

	Comp.	Prod.	Dry	*Gas
January	39	644	17	11
February	47	485	17	22
March	66	2,590	28	32
April	56	3,868	21	25
May	57	100	28	26
June	36	204	13	20
July	42	1,613	18	16
August	46	323	18	22
September	40	380	23	12
October	41	50	20	13
November	17	110	10	5
December	41	218	22	15
Total	528	10,585	235	229
Last year	726	40,223	297	177

*Gas production 3,977,878,818 feet.

Completions by Parishes

	Comp.	Prod.	Dry	*Gas
Bienville	7	0	6	1
Bossier	82	238	28	49
Caddo	100	4,307	57	6
Caldwell	2	0	2	0
Catahoula	6	0	6	0
Claiborne	4	0	4	0
DeSoto	25	23	15	8
East Carroll	6	0	5	1
Franklin	4	0	4	0
Grant	8	56	6	0
LaSalle	13	197	9	6
Lincoln	1	0	1	0
Morehouse	34	0	14	20
Natchitoches	2	0	2	0
Ouachita	41	0	4	36
Rapides	2	0	2	0
Red River	4	55	2	0
Richland	63	0	20	43
Sabine	13	409	10	0
Union	33	50	11	19
Webster	73	5,253	19	46
West Carroll	1	0	1	0
Winn	7	0	7	0
Total	528	10,585	235	229

Gas production: Bienville, 1,500,000; Bossier, 922,653,000; Caddo, 26,572,000; East Carroll, 51,119,000; Morehouse, 282,982,000; Ouachita, 197,547,000; Richland, 1,757,999,818; Union, 94,243,000; Webster, 600,763,000; total, 3,977,878,818 feet.

ARKANSAS
Completions by Months

	Comp.	Prod.	Dry	*Gas
January	34	2,840	24	2
February	15	939	8	1
March	10	188	4	0
April	12	3,440	4	0
May	25	25,712	7	2
June	35	22,324	17	0
July	47	6,732	24	2
August	71	5,330	37	8
September	35	1,574	16	4
October	43	2,773	22	7
November	14	1,445	4	3
December	22	3,805	11	0
Total	364	77,002	178	29
Last year	359	14,587	143	46

*Gas production 560,301,000 feet.

Completion by Counties

	Comp.	Prod.	Dry	*Gas
Ashley	2	0	2	0
Bradley	3	0	3	0
Calhoun	2	0	2	0
Chicot	3	0	3	0
Clark	1	0	1	0
Cleveland	1	0	1	0
Columbia	3	0	3	0
Dallas	1	0	1	0
Drew	2	0	2	0
Franklin	4	0	3	1
Garland	1	0	1	0
Hempstead	1	0	1	0
Johnson	6	0	0	6
Lafayette	2	0	2	0
Miller	3	0	3	0
Nevada	22	771	4	1
Ouachita	26	522	7	3
Pike	2	0	2	0
Poinsett	1	0	1	0
Union	279	75,709	136	18
Total	364	77,002	178	29

*Gas production: Franklin, 3,000,000; Johnson, 34,701,000; Nevada, 1,000,000; Ouachita, 12,700,000; Union, 508,900,000; total, 560,301,000 feet.

MISSISSIPPI
Completions by Months

	Comp.	Prod.	Dry	*Gas
April	1	0	1	0
May	3	0	2	1
June	1		1	0
Total 1928	5	0	4	1
Total 1927	5	0	4	1
Difference	0	0	0	0

*Gas production, 4,000,000 feet.

Completions by Counties

	Comp.	Prod.	Dry	*Gas
Lauderdale	1	0	1	0
Lee	1	0	1	0
Monroe	3	0	2	1
Total	5	0	4	1

*Gas production, 4,000,000 feet.

ALABAMA
Completions by Months

	Comp.	Prod.	Dry	Gas
April	1	0	1	0
July	1	0	1	0
Total 1928	2	0	2	0
Total 1927	0	0	0	0
Difference	2	0	2	0

Completions by Counties

	Comp.	Prod.	Dry	Gas
Franklin	1	0	1	0
Lawrence	1	0	1	0
Total	2	0	2	0

EAST TEXAS
Completions by Months

	Comp.	Prod.	Dry	*Gas
January	15	15	2	12
February	12	0	4	4
March	19	5	5	11
April	10	0	3	7
May	14	0	2	12
June	10	22	4	4
July	6	0	2	4
August	13	10	6	6
September	8	6	3	4
October	4	0	0	4
November	6	147	1	4
December	5	0	2	3
Total	122	205	34	81
Last year	93	349	20	62

*Gas production, 303,860,716 feet.

Completions by Counties

	Comp.	Prod.	Dry	*Gas
Cass	3	0	2	8
Marion	2	5	1	6
Harrison	29	0	8	21
Panola	82	28	19	63
Shelby	6	172	3	6
Total	122	205	34	81

*Gas production: Harrison, 61,072,000; Panola, 238,188,716; Shelby, 4,600,000; total, 303,860,716 feet.

NEW POOLS DEVELOPED IN SOUTHWEST TEXAS

(Continued from Page 164)

20, in sand at 2,336-49 feet and flowed initially at the rate of 300 bbls. a day and settled to about 150 bbls. Seven wells had been completed by December 31 and the daily average production of the field for December was 564.2 bbls.

Killam's Cuellar Pool

A couple of weeks after No. 1 Norton was brought in O. W. Killam brought in his No. 1 Cuellar in Zapata County east of the old Jennings gas field in sand at 1,460-65 feet with an initial flow of about 250 bbls. That field at the close of December also consisted of seven wells and the daily average for the field for December was 332 bbls.

Laredo Production

Due to the new fields the Laredo district for the year 1928 shows a gain in production of 239,890.10 bbls. over the production of 1927 which was a decline from 1926. The figures for the two years are:

1928	3,235,993.73
1927	2,996,103.10
Difference	239,890.10

Discovery of some new gas spots in the Laredo territory was also a feature of the year. Late in the year John J. O'Hern brought in a gas well 2 miles north of oil production in the Magnolia-Cole Pool and Houston Gulf Gas another a mile southeast of it, both in sand at about the depth of oil production in the Magnolia-Cole Pool. Humble Oil & Refining Co. and the Reiter-Foster Corp., who, in 1927, opened an oil pool in sand at around 2,700 feet 12 miles north of the Cole gas field in Duval County late in 1928, opened a gas pool 3 miles southeast of the oil pool.

Miscellaneous "Hits"

Other places where oil or gas in more or less important quantities was found include H. E. Hewitt's No. 1 Ray in northern Bee County near Pettus with a little gas at 3,250 feet. It is not big enough to make a commercial well as it stands but was important enough that it started a leasing campaign across the northern part of Bee and Live Oak Counties.

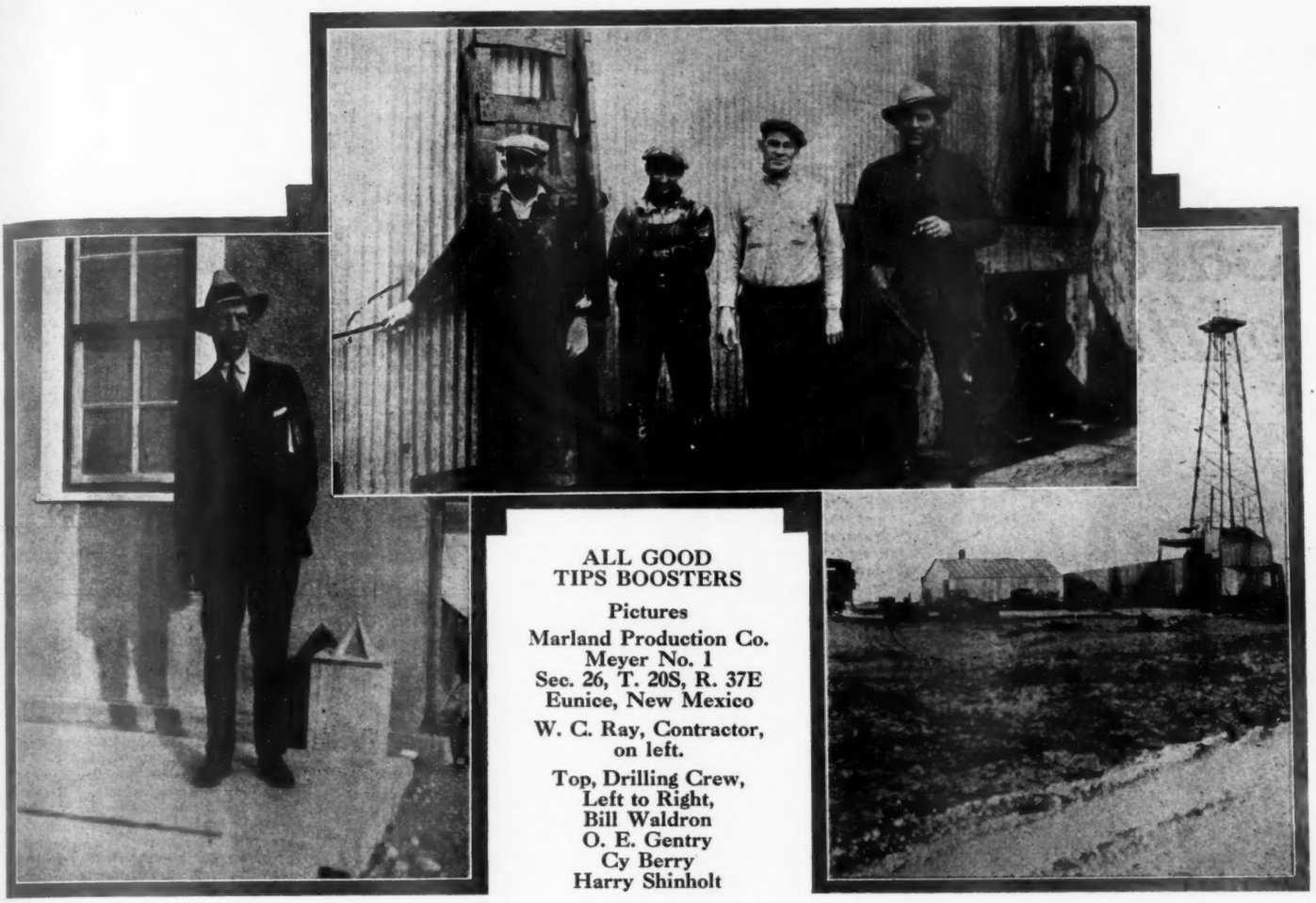
In Live Oak at Three Rivers shallow gas was found a mile northwest of the town and four wells completed at around 600 feet.

In Victoria County at Nursery in the north part of the county the Humble Oil & Refining Co. got gas in a number of formation tests at around 300 feet and has drilled the twelfth well to work out the structure.

In western Bexar County and in the same county southeast of San Antonio a little oil was found. In the No. 1 Oppenheimer of Larsen & Walsh in western Bexar it was developed at about 1,100 feet and in the No. 1 Doborowolski southeast of San Antonio at 700 feet, in each case good for a few barrels.

Ingleside Port

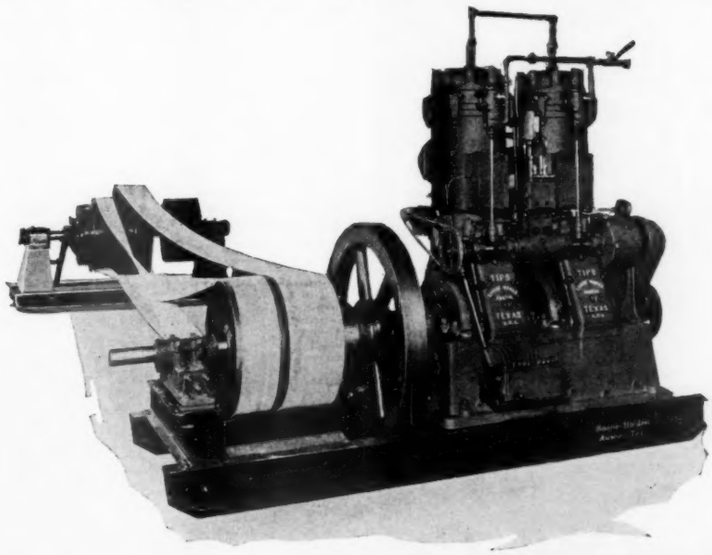
Humble Oil & Refining Co. moved 20,181,410 bbls. of oil through its port in the vicinity of Aransas Pass north of Corpus Christi. In January, 1928, the Humble was having difficulty with the State of Texas. Humble with a big pro-



ALL GOOD TIPS BOOSTERS

Pictures
Marland Production Co.
Meyer No. 1
Sec. 26, T. 20S, R. 37E
Eunice, New Mexico
W. C. Ray, Contractor, on left.
Top, Drilling Crew, Left to Right,
Bill Waldron
O. E. Gentry
Cy Berry
Harry Shinholt

Mr. W. C. Ray drilled a 3,500-foot well in Lea County, New Mexico, previous to the above Meyer No. 1, at a cost of $327.00 for fuel and lubrictaing oil, including hauling charges, which were high due to distance from railroad and nature of roads.



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duction of oil from West Texas to be moved was having difficulty in loading the oil out fast enough and wanted to extend its pipe line 2 miles into the Gulf of Mexico to a point where there was deep water, to avoid having to wait till the channel and harbor were dredged deeper to accommodate big vessels. Texas enjoined the extension of the line but eventually the Humble company won the suit, but did not build the line. Instead it built a harbor on Harbor Island and the channel was deepened to the harbor. Most of the oil moved during 1928 was from West Texas but some was from Mirando, Humble having lines from both territories. The movement of oil through Ingleside and Harbor Island at Port Aransas practically started with the first of the year 1928 and during the year the company began operating its new refinery at Ingleside. Humble also last year established a sales department in San Antonio. Peak of shipments by the Humble company through this new outlet was in the week of May 26, 1928, when 632,272 bbls. was shipped by water.

SOUTHWEST TEXAS FIELDS
Summary of Completions for Year 1928

	Comp.	Prod.	Dry	Gas
Mirando	284	30,054	69	119
Luling	35	941	5	0
Kingsville	11	145	5	3
Dale	25	1,802	0	0
Refugio	48	1,325	10	32
Bruner (Salt Flats)	35	6,210	13	0
Roxana-Larremore	12	1,317	0	0
Adams (Medina Co.)	5	0	1	4
White Point	23	0	6	17
Lockhart	12	700	11	0
Agua Dulce	7	0	4	3
Somerset	24	210	0	0
Yoast (Bastrop Co.)	2	650	0	0
Miscellaneous	219	524	187	22
Total 1928	742	43,878	311	200
Total 1927	868	12,762	394	181
Difference	126	31,116	83	19

Completions by Months

Month—	Comp.	Prod.	Dry	Gas
January	35	980	24	6
February	54	431	23	12
March	30	707	19	6
April	52	740	16	17
May	52	2,125	18	29
June	62	3,638	36	9
July	61	4,699	19	18
August	60	4,190	26	21
September	74	6,423	29	22
October	88	5,929	22	27
November	83	6,160	38	24
December	88	7,856	41	10
Total 1928	742	43,878	311	200
Total 1927	868	12,762	394	181
Difference	126	31,116	83	19

BUSY, PROSPEROUS YEAR IN KENTUCKY FIELDS

(Continued from Page 167)

in the Burton Pool, had an initial of 60 bbls. This pool was opened by Daly & Lowman, Cleveland, Ohio, operators, who during the middle of the season disposed of their 100-acre lease of the south end of the Bob Hamilton farm, with nine wells for a consideration reported slightly above $100,000. The Ohio Oil Co. went to a depth of 1,695 feet at a test on the J. B. Jackson farm, on the Weir Road, 3 miles from Greenville, where oil showing was found and it is being given a month's test before drilling deeper. It has all the earmarks of a good well and a nice gravity crude.

KENTUCKY
Summary of Wells Completed in 1928

Month—	Comp.	Prod.	Dry	Gas
January	57	1,638	16	1
February	73	3,610	17	2
March	101	3,541	27	3
April	125	3,675	43	4
May	127	3,659	40	3
June	118	3,246	52	1
July	84	2,408	22	5
August	130	2,903	45	5
September	131	3,395	38	4
October	125	3,353	32	5
November	144	1,919	48	9
December	128	1,990	44	6
Total 1928	1,343	35,337	424	48
Total 1927	1,157	30,614	330	40
Difference	186	4,723	94	8

Completions by Counties

County—	Comp.	Prod.	Dry	Gas
Warren	31	389	5	0
Allen	46	131	26	0
Barren	140	2,454	51	0
Ohio	519	19,139	145	15
Daviess	345	11,320	117	8
Hancock	22	168	11	1
McLean	14	35	12	0
Cumberland-Monroe	2	0	2	0
Clinton	1	5	0	0
Henderson-Union	4	40	1	1
Breckenridge	16	190	3	0
Caldwell	2	5	0	1
Webster	3	50	0	1
Meade	3	35	0	0
Hopkins	2	20	0	1
Metcalf	2	0	0	2
Wayne	28	136	9	0
Lee-Owsley	8	53	3	3
Estill	62	124	20	0
Lawrence-Johnson	2	0	0	2
Johnson-Magoffin	36	323	3	0
Floyd-Knott	11	50	0	10
Wolfe	20	119	4	0
Elliott	4	13	1	0
Powell	6	16	2	0
Clay	5	0	3	2
Knox	3	0	2	1
Butler	1	20	0	0
Morgan	2	0	2	0
Simpson	1	2	0	0
Hardin	1	0	1	0
Breathitt	1	0	1	0
Total	1,343	35,337	424	48

Tennessee

Spasmodic spurts were made from month to month in the Tennessee fields for the entire season of 1928, with a few wells found above the average in Clay County, brought about by the opening of a new producing area on the Mitchell Creek anticline, which has proven so far to be among the rich spots of Clay County.

In February a monster shallow producer was uncovered by the Carnahan Oil Co., in a second test on the Joe Moredock farm, on Asburn Creek that flowed 960 bbls. of crude in 15 hours, making it the outstanding producer of any of the southern fields below the Ohio River.

During the season of 1928 there were a total of 66 wells completed, of which 41 were oil wells with an initial production of 3,163 bbls., 18 dry holes and 7 gas wells. Of this number Clay County is credited with 46 completions, 32 being oil producers with an initial of 2,691 bbls., 9 dry holes and 5 gas wells. Jackson County was second with 11 completions, 9 of which were oil producers with an initial of 472 bbls., and 2 dry holes. Comparing the 1928 season of development work shows there were 1 less completion, 8 less producers with 790 bbls. less initial production, 2 more dry holes and 5 more gas wells.

At present it looks as though Tennessee will develop into a gas producing area, as nearly every field opened up for oil shows more or less gas. Where gas has been found alone, the wells have been large. In some spots pay sands are numerous in the wells. Twenty-four gas sands were found in a well not far removed from Red Boiling Springs at less than 400 feet in depth. This area is bound to be drilled sometime in the near future for the gas. There is also believed to be numerous gas areas almost directly south of Clay County clear across the State, north and south.

TENNESSEE
Summary of Wells Completed in 1928

Month—	Comp.	Prod.	Dry	Gas
February	22	1,165	11	3
March	9	78	4	1
April	9	495	1	2
June	10	250	1	0
July	3	100	1	0
August	3	450	0	0
September	5	185	0	0
October	2	70	0	0
November	3	390	0	0
December	1	0	0	1
Total 1928	66	3,163	18	7
Total 1927	67	3,953	16	2
Difference	1	790	2	5

Completions by Counties

County—	Comp.	Prod.	Dry	Gas
Clay	46	2,691	9	5
Pickett	1	0	1	0
Jackson	11	472	2	0
Overton	2	0	1	1
Trousdale	1	0	1	0
Macon	1	0	1	0
Putnam	2	0	1	1
Coffee	1	0	1	0
Marshall	1	0	1	0
Total	66	3,163	18	7

KENTUCKY-TENNESSEE
Summary of Results of Field Operations

Field—	Comp.	Prod.	Dry	Gas
Kentucky	1,343	35,337	424	48
Tennessee	66	3,163	18	7

A CLOSE-UP VIEW OF WORLD'S SHALLOW POOL

(Continued from Page 172)

When the new proration plan for Yates was started last year in which 75 per cent of allowed production was allotted on the basis of estimated potential production and the remaining 25 per cent of allowed production allotted on the basis of proven acreage, there was a small and rapid drilling cam-

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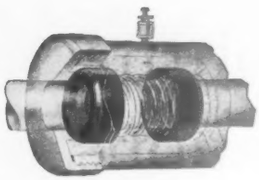

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paign to prove up the 100-acre units. Since then Yates has had only a small amount of routine drilling.

Deeper Pay in Many Wells

A great many wells in the pool were deepened in 1928 with excellent results and consequently a big increase in the potential production of the leases affected. This likewise reflected in the potential production of the pool which totals 4,348,191 bbls. The average potential production of Yates totaled 2,203,904 bbls. on January 1 from 284 wells, some of which were not on production at the time.

The most prolific lease to date is Mid-Kansas Oil & Gas Co. and Transcontinental Oil Co.'s Yates-A lease. On this lease the discovery well was drilled in October, 1926, but the lease was not carried on production reports until the following December. Its 24 wells have produced 3,907,482 bbls. There are four wells on it that have an estimated potential production of better than 50,000 bbls. and one of these wells is rated an 84,000-bbl. producer.

Mid-Kansas and Transcontinental companies drilled two of the 100,000-bbl. wells. One was No. 8 Yates-C in Section 60. It is rated as a 126,158-bbl. producer on the proration umpire's report and is in a section of the field fairly well developed.

5,317 Bbls. in an Hour

In a part where there are fewer wells the same operators' No. 5 Yates-D, in Section 62, has the distinction of being the world's greatest shallow producer. On its hourly test it made 5,316.60 bbls. and on this basis it would produce 127,598 bbls. daily.

Three of the California Co.'s wells belong in the class of the truly great. That company's No. 10 Yates, Lease 1, Section 34, is good for 120,000 bbls. daily. No. 8 Yates on the same lease is rated a 103,000-bbl. well and No. 13 is figured to be a 101,000-bbl. producer. Gulf Production Co.'s No. 13 Yates on the Runnels County School Land in the northern part of the field is a 116,212-bbl. well.

At the opening of 1928 Yates had 95 producing wells which were pinched to around 47,455 bbls. At that time the pool's production was pinched to 48,000 bbls. in accordance with a voluntary proration plan. Less than 200 wells have been drilled in the field within the past year and more than 15,000 acres have been proven productive.

Increasing Productive Territory

Many of those wells that were drilled were in wildcat and semiwildcat territory and this resulted in considerable productive territory being added to the confines of Yates. The approximately 200 wells that were drilled and those that were deepened to more prolific production boosted the potential production of the pool from approximately 1,000,000 bbls. to 4,348,000 bbls. in a day, in one year's time. Almost twice as many wells were drilled in the development of Hendricks in Winkler County but the reward in potential production was not as great.

Water encroachment in Yates has not thus far been serious. There are 37 wells showing water but most of these wells are on the edge of the pool and particularly that section on the east side on the banks of the Pecos River. One well there has been abandoned.

The accompanying table shows the total production of each lease to January 1 and another table showing the potential and allowed production of each lease.

YATES POOL ALLOWABLE PRODUCTION BY LEASES
Effective January 1, 1929

Company, farm—	Sec.	Blk.	Wells	Units	Poten. Prod.	Average Poten.	Allowed Prod.
California Co.:							
Yates	34	194	17	6	717,130	224,596	6,021
Smith	23	194	6	5	10,730	9,428	793
Smith—Lease 2	26	194	2	2	627	627	245
Smith—Lease 3	35	194	12	6	73,290	36,063	1,545
Smith—Lease 1	37	194	3	3	4,009	3,894	433
Tippett	1	1	1	1	115	.....	115
Total			41	23	805,901	274,608	9,162
Cosby and others:							
Smith	24	194	1	1	658	658	490
Dixie Oil Co.:							
Thompson	72	1	1	1	115	.....	115
Grayburg Oil Co.:							
Haliff	70	1	3	1	532	177	119
Gulf Prod. Co.:							
Smith	28	194	12	6	87,712	24,592	1,374
Smith-B	22	194	1	1	115	.....	115
Thompson	71	1	2	1	240	120	118
Yates, Runnels			19	16	277,160	254,273	7,579
Total Gulf Prod. Co.			34	24	365,227	278,985	9,386
Kirby Pet. Co.:							
Tippett	40	104	1	1	115	.....	115
Kirby & Edson:							
Tippett	108	194	1	1	371	371	250
McMan Oil & Gas Co.:							
Goodrich	108	194	2	2	842	727	247
Richardson	108	194	1	0.8	115	.....	85
Smith-A	104	194	1	1	66,264	52,044	1,096
Smith-B	104	194	4	3	22,968	.....	....
Smith-C	25	194	2	2	6,406	6,406	382
Total McMan O. & G. Co.			10	8.8	96,595	59,177	2,410
McMan and Marland:							
Yates	34½	194	17	7	295,779	102,005	3,328
Marland Oil Co.:							
Yates-A	60	1	10	2	66,907	10,517	480
Matador Oil Co.:							
Smith	24	194	2	1	5,996	2,998	640
Mid-Kansas and Transcont.:							
Smith	31	194	2	2	26,036	26,036	848
Smith-Taylor	33	194	18	6	255,658	70,308	2,351
Yates-A	34½	194	23	15	657,657	371,585	10,530
Yates-B	61	1	25	6	394,534	137,500	2,947
Yates-C	60	1	10	3	414,981	169,996	4,274
Yates-D	62	1	6	6	204,700	204,700	5,547
Yates-E	59	1	1	1	539	539	139
Yates-F	63	1	4	4	11,853	11,622	734
Yates-G	34½	194	4	4.3	21,039	20,809	948
Yates-H	32	194	6	6	184,594	184,479	5,974
Total Mid-Kans. & Trans.			99	53.3	2,171,691	1,197,575	34,593
Oil Operators Trust:							
River Bed	...	...	7	1	9,356	1,337	147
Phillips Pet. Co.:							
Monroe	39	194	1	1	115	115	115
Red Bank Oil Co.:							
Smith	24	194	5	1.4	5,670	2,310	562
Shell Pet. Corp.:							
Smith-A	27	194	9	6	12,736	7,001	856
Smith-Sec. 2	2	194	1	1	115	.....	115
Smith-B	24	194	1	0.4	7,636	7,636	660
Smith-D	24	194	3	3	5,727	5,727	481
Tippett	102	194	11	4	142,166	56,413	1,799
Totals			25	13.4	168,380	76,777	3,911
Savoy & Mazda:							
Smith	24	194	3	1	7,004	2,335	660
Simms Oil Co.:							
Smith	103	194	7	4	298,717	165,638	4,394
Skelly Oil Co.:							
Tippett	108	194	1	1	115	.....	115
Grand totals			284	157.9	4,348,191	2,203,904	72,500

1928 SHOWED RAPID SWING TO ELECTRIC POWER FOR PIPE LINE PUMPING!

The majority of pipe line pumping stations installed in Texas in 1928 are using electric power.

This is in fulfillment of the vision of the pioneers in electric pipe line pumping. It shows the growing understanding of the adaptability of electric power to oil field needs.

Every indication is that 1929 will show even greater gains in the use of electric power for pipe line pumping.

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—lower maintenance cost
—lower labor cost
—lower total cost per barrel pumped
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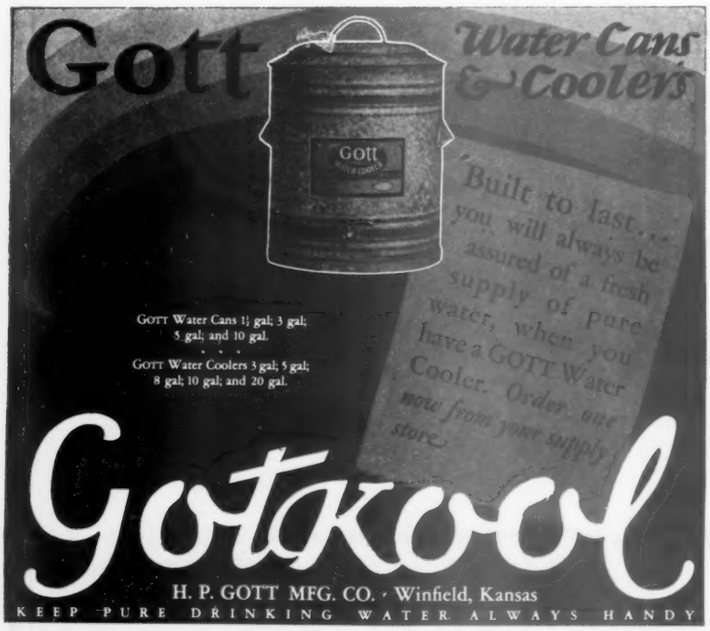
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OIL COMPANIES MADE FINANCIAL PROGRESS

(Continued from Page 176)

statements of the large companies would be still more satisfactory. Heavy overproduction of low-grade West Texas oils, with a steadily growing supply of South American crude, forced fuel oil prices to extreme low levels, and the situation reached the point where sales of gasoline and other products were being forced to carry the burden of the low fuel oil market.

Refiners made considerable strides during 1928 in effecting new operating economies, and the campaign to obtain greater efficiency in refinery operations is expected to carry over through 1929 with similar success.

Standard's Dividend Record

The dividend record of the Standard Oil group, with the fourth quarter estimated, shows a new high record for all time. Earnings and dividends of this group, in a broad way, are fairly representative of the larger independent integrated companies. The record for this group, with comparison with preceding years back to the dissolution, follows:

	First quarter	Second quarter	Third quarter	Fourth quarter	Total
1928	$48,798,668	$55,768,268	$53,047,800	$64,722,485	$222,337,221
1927	55,873,413	54,291,615	47,728,440	55,804,765	213,617,340
1926	40,580,317	*50,618,451	46,427,278	62,685,543	200,337,589
1925	34,356,618	41,905,728	35,140,584	42,104,169	153,506,099
1924	34,975,867	40,699,592	34,712,810	40,000,286	150,388,555
1923	33,499,988	36,311,251	31,066,251	37,545,805	138,423,295
1922	28,206,068	29,205,349	28,628,099	†43,000,349	129,039,865
1921	28,987,611	29,131,727	27,609,227	29,586,727	115,294,292
1920	26,796,606	27,313,396	29,804,567	31,861,824	115,776,793
1919	26,759,502	26,397,119	24,418,169	28,326,687	105,901,477
1918	26,483,747	26,759,002	26,204,915	24,035,252	103,482,916
1917	23,097,668	26,428,252	22,968,751	27,463,252	99,957,923
1916	22,179,085	‡30,406,454	21,980,168	24,062,168	98,627,875
1915	15,241,966	14,368,636	15,891,966	16,898,636	62,401,204
1914	17,904,636	16,426,306	14,430,626	14,931,306	63,693,874
1913	§55,652,423	15,552,096	15,213,746	21,377,096	107,795,361
1912	10,220,396	11,983,746	15,190,396	16,392,096	51,686,634

*Includes $4,000,000 paid by Southern Pipe Line Co. in partial liquidation.
†Includes aggregate extra disbursements of $11,600,000 by four eastern pipe line companies.
‡Includes $6,613,786 disbursed by National Transit Co. in adjustment of capitalization.
§Includes $39,335,352 disbursed by Standard Oil Co. of New Jersey from repayment of loans to former subsidiaries.

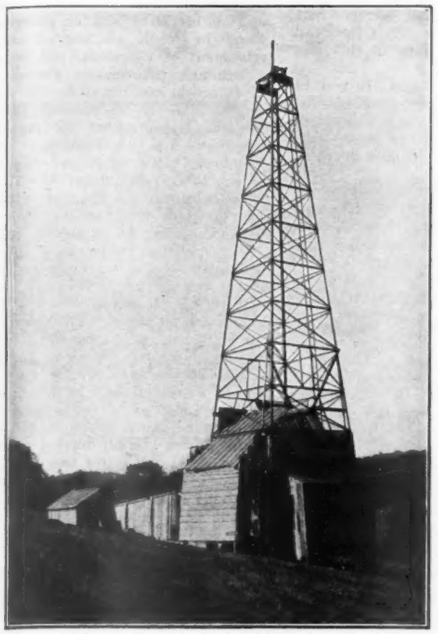
Sales and Price Movements

A summary of the stock and bond sales and price movements of a number of leading oil companies listed on the New York Stock Exchange, with comparison with the previous year's data, follows:

Company—	Sales 1928	Sales 1927	Closing price 1928	Year's net change
Amerada Corp.	2,105,100	603,100	39	+ 9
American Republics	990,600	649,200	63	—10⅝
Atlantic Refining, new	1,769,200	.....	66	.....
Atlantic Refining, pfd.	8,340	8,900	112	+49
Barnsdall Oil Corp. "A"	5,579,600	2,475,070	42⅛	+17
Barnsdall Oil Corp. "B"	10,400	131,950	40½	+15⅝
Beacon Oil	1,424,800	55,400	21⅞	+ 2⅝
California Petroleum	408,440	870,650	28	+ 3¼
Houston Oil	1,280,000	5,703,600	98	—58⅛
Independent Oil & Gas	1,460,600	860,000	35	+ 3½
Indian Refining, com.	2,136,500	231,400	29¾	+20⅝
Indian Refining, pfd.	4,200	8,500	142	.....
Lago Oil & Transport	266,000	748,000	31	— 3⅝
Louisiana Oil, com.	1,903,900	1,329,000	14⅛	+ 3⅜
Louisiana Oil, pfd.	5,380	11,430	91	+ ⅝
Maracaibo Oil	232,900	126,900	16⅛	+ ⅝
Marland Oil	3,588,700	3,876,900	42	+ 7
Mexican Petroleum	1,100	560	264	—56
Mexican Seaboard Oil	6,210,800	164,600	65	+60
Mid-Continent, com.	2,301,900	1,475,000	37⅝	+ 6⅛
Mid-Continent, pfd.	7,000	9,500	120½	+16
Middle States	2,827,600	1,095,900	4½	+ 2⅛
National Sup., com.	277,200	279,700	145	+48⅛
National Sup., pfd.	20,010	4,230	115½	— 1⅛
Oil Well Sup., com.	48,000	393,800	30⅜	— 5⅜
Oil Well Sup., pfd.	11,950	12,600	102	— 6
Pan American Petroleum	315,200	335,875	46⅝	+ 3⅛
Pan American "B"	3,482,800	2,938,500	48⅝	+ 5
Pan American Western "B"	307,800	277,800	16⅝	+ 3
Panhandle, com.	322,500	342,700	12¼	— 3⅝
Panhandle, pfd.	16,100	12,800	80	— ¼
Phillips Petroleum	2,821,700	5,838,100	45	+ 4½
Pierce Oil, com.	1,510,200	196,400	2½	+ 1⅝
Pierce Oil, pfd.	141,900	23,300	28⅝	+ 9⅝
Pierce Petroleum	997,200	483,300	5⅝	+ 1⅜
Producers & Refiners, com.	574,100	1,279,000	22⅞	+ 3½
Producers & Refiners, pfd.	11,900	32,820	43	+ ⅞
Pure Oil, com.	2,064,200	1,865,800	27	+ 1¼
Pure Oil, pfd.	9,470	7,200	114⅝	+ 3⅝
Richfield Oil	3,932,400	21,800	47½	+30⅛
Royal Dutch, N. Y.	426,400	155,350	54¼	+ 6⅛
Shell Transport	14,300	16,100	56¾	+13⅛
Shell Union	2,278,900	683,500	27⅛	+ 3⅝
Simms Petroleum	963,300	618,400	22⅝	+ ⅝
Sinclair Consolidated, com.	17,563,200	2,398,600	42½	+21⅛
Sinclair Consolidated, pfd.	28,400	39,900	109⅝	+ 7⅛
Skelly Oil	1,275,400	753,600	35¼	+ ⅜
Standard Oil of California	2,080,400	1,106,700	72	+16⅛
Standard Oil of New Jersey	5,495,400	2,528,500	55	+18⅛
Standard Oil of New York	7,819,600	1,357,330	45½	+14⅝
Sun Oil, com.	402,100	105,600	65	+33⅛
Sun Oil, pfd.	5,600	5,300	104	+ 3⅝
The Texas Corporation	5,075,700	1,638,100	67	+ 7
Superior Oil	3,691,000	389,100	10	+ 6⅝
Texas Pacific Coal & Oil	1,879,100	720,000	18⅝	+ 4⅝
Tide Water, com.	205,500	84,900	37	+14⅛
Tide Water, pfd.	44,900	38,300	96	+ 9⅝
Tide Water Associated, com.	3,520,600	661,900	21⅛	+ 3⅝
Transcontinental Oil	4,724,000	4,899,100	12¾	+ 2⅜
Union Oil of California	823,900	729,600	50½	+ 7⅛
Union Tank Car	22,200	59,000	122	— 4⅝
White Eagle O. & R., pfd.	567,800	92,200	35⅝	+15⅝
BONDS				
American Republics 6s	125,000	829,000	102⅞	+ ⅝
Associated Oil 6s	617,000	772,000	102⅛	— ⅛
Atlantic Refining deb. 5s	1,232,000	989,000	101	— 1⅛
Barnsdall Oil Corp. 6s	13,588,000	18,658,000	99⅜	+ 9⅜
California Petroleum deb. 5½s	2,582,000	3,723,000	102½	+ 2⅜
California Petroleum 5s	4,120,000	2,728,000	101	+ ⅛
Humble Oil & Refining 5s	5,072,000	4,838,000	100⅝	+ ⅝
Humble Oil & Refining 5½s	2,703,000	3,246,000	102¼	— ⅜
Pan American 6s	2,706,000	5,284,000	106	+ 3⅛
Pan American 7s	478,000	620,000	104¾	— ⅝
Pierce Oil 8s	140,000	370,000	106	+ 1½
Producers & Refiners 8s	193,000	161,000	110⅝	— 1⅜
Simms Petroleum 6s	4,570,000	3,282,000	100	— ⅞
Sinclair 7s	4,760,000	7,381,000	103	+ ⅜
Sinclair 6s	7,263,000	5,632,000	98	+ 1
Sinclair 6½s	6,975,000	9,897,000	100⅝	+ 2⅜
Sinclair Pipe Line 5s	4,381,000	4,547,000	94	.....
Skelly Oil 5½s	1,947,000	1,920,000	93	— ⅛
Standard Oil of New Jersey 5s	6,893,000	11,409,000	102	— 1⅜
Standard Oil of New York 4½s	8,971,000	12,472,000	97⅛	— ⅝
Superior Oil 7s	179,000	102,000	100	— 1⅜
Union Oil of California 5s "A"	80,000	249,000	101½	— ⅜
Union Oil of California 5s "C"	878,000	1,208,000	100	— ⅜
Union Oil of California 6s	306,000	249,000	108⅝	— ⅝

New financing by the leading oil companies in 1927 exceeded $400,000,000, establishing a new high record in this respect. During 1928, however, marked improvement was shown in this respect.

With a continuance of present conditions in the oil industry, 1929 is not expected to require much in the way of new financing by oil units. On the contrary, it is expected that some of the larger companies will take steps to reduce their bonded indebtedness this year.



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INCREASE IN WORK IN OLD CENTRAL WEST

(Continued from Page 176)

Onondaga lime at 2,220 feet, finishing up well at 2,288 feet where a sand, gray and very hard, was full of salt water. Salt water was also found at 2,235 feet and 2,274 feet. Records of pipe in this test were 36 feet of 12 inch.

The Highland Oil & Gas Co.'s test in the southwest corner of the J. M. Mullinax, in SW Section 4, Wabash Township, Wabash County, completed in September, had an initial of 120 bbls. from a depth of 1,568 feet.

Edward R. List, in October, completed his wildcat venture on the F. W. Knowles in NE Section 16, Spring Grove Township, Jefferson County. This hole went to a depth of 2,100 feet where it filled up with salt water and no indication of oil or gas. The Ohio Oil Co. drilled a dry hole in a test on the Joseph Reichert, Section 3, Sugar Loaf Township, St. Clair County.

ILLINOIS

Summary of Wells Completed in 1928

Month—	Comp.	Prod.	Dry	Gas	Old Wells Abd.
January	6	59	2	0	9
February	14	124	6	1	4
March	8	116	1	1	0
April	9	47	5	1	1
May	7	56	3	1	2
June	9	218	0	1	4
July	7	18	1	0	5
August	12	124	6	0	12
September	17	428	6	0	1
October	22	334	10	2	0
November	12	71	5	1	1
December	14	98	8	0	6
Total 1928	137	1,693	53	8	45
Total 1927	161	2,244	65	8	37
Difference	24	551	12	0	8

Summary by Counties

County—	Comp.	Prod.	Dry	Gas	Old Wells Abd.
Clark	9	85	5	0	0
Cumberland	3	3	2	0	0
Crawford	44	501	12	6	6
Lawrence	28	403	4	0	21
Wabash	40	668	19	2	15
Morgan	1	8	0	0	0
McDonough	1	0	1	0	0
Tazwell	1	0	1	0	0
Marshall	1	0	1	0	0
Madison	2	0	2	0	0
St. Clair	3	25	2	0	9
Marion	1	0	1	0	3
Jefferson	1	0	1	0	0
Macon	1	0	1	0	0
Shelby	1	0	1	0	0
Total	137	1,693	53	8	45

VENEZUELA OUTRANKS RUSSIA IN OUTPUT

(Continued from Page 136)

comparison with the corresponding period in 1927:

From—	Bbls. of 42 U. S. Gals. First 11 Months 1928	1927
Mexico	15,986,000	24,692,000
Venezuela	42,885,000	18,049,000
Colombia	10,611,000	6,887,000
Other Countries	3,294,000	2,545,000
Totals	72,776,000	52,173,000

Total imports of crude for 1927 amounted to 58,156,000 bbls., considerably less than the total for the first 11 months of 1928.

Aside from Venezuela, domestic operators are concerned with the outlook in Colombia and Peru, Mexico apparently being definitely counted out of the running as a potential menace to the stability of home markets.

Production in Colombia

Production in Colombia, where International Petroleum (Standard of New Jersey) is operating, showed a gain of approximately 33⅓ per cent in output during 1928. Production in Peru, where the same company is operating, showed little change. Both Trinidad and Ecuador showed gains in 1928 over the previous year, although gross production in both countries was rather small. Estimated production in these four countries for the first 10 months of the year, with comparison with 1927 totals for the same period, follows:

	Bbls. of 42 U. S. Gals. First 10 Months 1928	1927
Colombia	16,619,500	12,216,500
Peru	*9,271,600	*9,204,600
Trinidad	5,480,000	3,316,200
Ecuador	812,600	392,600

*First nine months.

American companies operating in Colombia experienced considerable difficulty with unfavorable legislation and other opposition throughout the year. Cancellation of the Barco Concessions aroused considerable concern among American oil men, but at the close of the year negotiations were in progress for the adjustment of this controversy, with fair prospects of success. There were some indications, likewise, of a change in the attitude of the Colombian government toward the whole attitude of outside development of Colombian oil resources.

Although propaganda against foreign oil interests continued in the Argentine in 1928, and the Yacimientos Petroliferos Fiscales (Government oil organization) extended its development program, Standard Oil Co. of New Jersey, through its subsidiary, Standard Oil Co. (Argentina) continued to operate in the Province of Mendoza, where a little foreign development work is going on, the Argentine petroleum industry is now closely controlled by the Government petroleum organization.

With completion of the new Lago refinery on the Island of Aruba, off the north coast of Venezuela, scheduled within the next two months, approximately 75 per cent of the crude production of Venezuela will be processed in the country itself or at refineries located on the Dutch Islands of Aruba and Curacao, Royal Dutch already having refineries in operation at the latter two points.

The gravity of principal Venezuelan crudes is reported as follows:

	Deg. Be.
Lagunillas	17-18
La Rosa	21-26
Mene Grande	*16-18
Ambrosio	22-24
Benitez	30-32
El Mene	36-38
Concepcion	36-38
La Paz	38-42

*About 15 per cent of the output of this field runs 28 degrees Baume.

Average gasoline recovery by topping the above crudes, with the exception of El Mene and Concepcion, is about 10 per cent. By cracking the residue, an additional recovery of 25 per cent is possible. El Mene and Concepcion crude recovery by straight run averages about 35 per cent.

Trinidad crude averages 18 to 20 degrees Baume, and shows virtually the same refining results as Venezuelan oil.

Colombian crude, averaging 28 to 30 degrees Baume, yields 15 per cent gasoline by topping, and has a small lubricating content. Lubricant content of Venezuelan and Trinidad oil is extremely small.

MAJOR DISCOVERY IN KANSAS IN YEAR 1928

(Continued from Page 129)

production yet, but the presence of magnetometer highs which have been checked by the core drill lend importance to the region. The principal activity has been in Townships 8s and 9s and Ranges 15w and 16w.

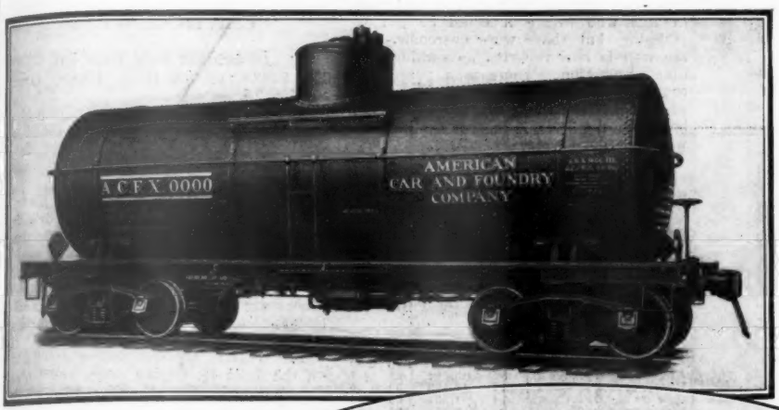
Production in Chat

In Marion County, the discovery of oil in the chat has been of unusual interest, and while the output has been small, there seems to be an idea that the region has good possibilities for production in the lower formations. The first well to find the chat productive was Courtney B. Davis' No. 1 Rample, SW cor. NW, Section 7-19-3e, near the town of Hillsboro. This well topped the chat 2,425 feet and had 8,000,000 feet of gas at 2,427 feet. The first oil was found at 2,448 feet, when it began to spray. The well was drilled deeper and found water, and the average production was 20 bbls. of oil and 7 bbls. of water per day. The offsets have been dry in the chat and are being drilled down in hopes of finding oil in the deeper formations.

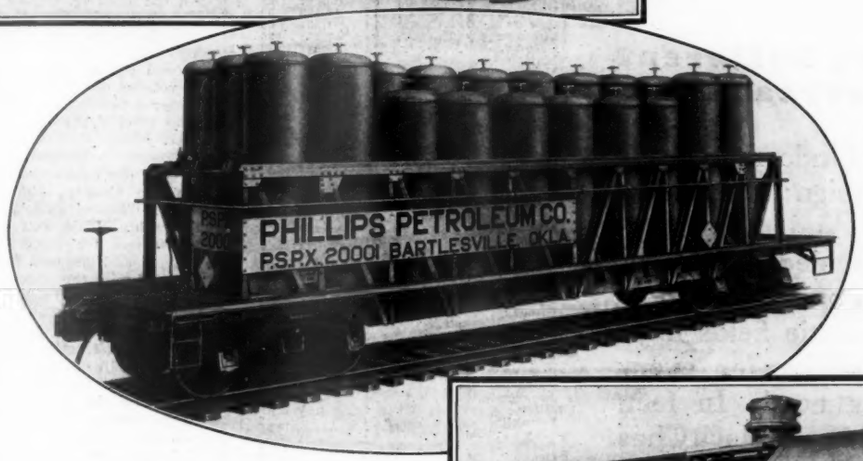
A One-Well Pool

Cowley County was prevented from having another Rainbow Bend Pool when the region around the Gypsy Oil Co.'s No. 1 Douglas was found disappointing. The Gypsy Oil Co.'s No. 1 Douglas in Section 23-34-2w, found the Wilcox sand at 4,400 feet and was shut in for over one year. When it was finally opened up, it made 450 bbls. of oil per day. The Wentz Oil Corp. owned a lease near the Douglas well, and when contractual obligations required the drilling of the Wentz

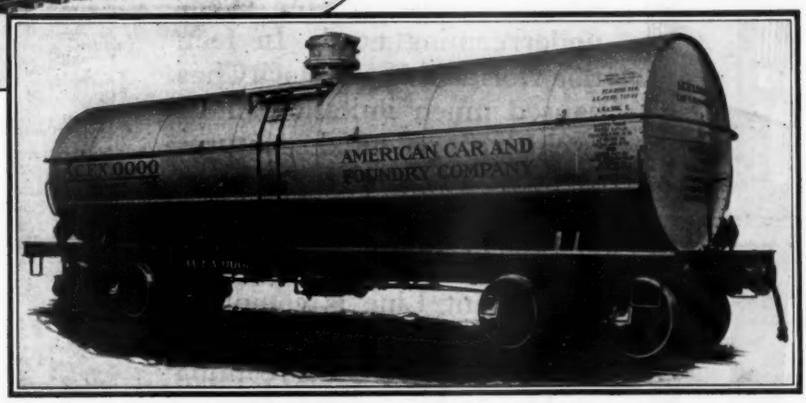
a.C.f. TANK CARS



At the left, a general service car, built in accordance with I.C.C. Shipping Container Specification No. 103. This car embodies all of the latest improvements, and the construction throughout is even stronger than that of the earlier types which have proven so successful.



Multi-unit car (center picture) for carrying thirty 1,000-pound capacity Rowland Containers (I. C. C. No. 27) for propane, butane, or anhydrous ammonia, or thirty 1-ton containers for liquid chlorine or sulphur dioxide. Another type of multi-unit car can be furnished, carrying fifteen 1-ton containers, horizontally, for liquid chlorine or sulphur dioxide.



Tank car (bottom picture) for liquefied petroleum gases, conforming to latest requirements of the A. R. A. and I. C. C. Shipping Container Specification No. 105-A-300. This particular car has a nominal water capacity of 11,000 gallons, tank sheets ¾" thick, forge welded, and is equipped with a safety valve set at 225 pounds per square inch, loading and unloading pipes, angles valves, etc.

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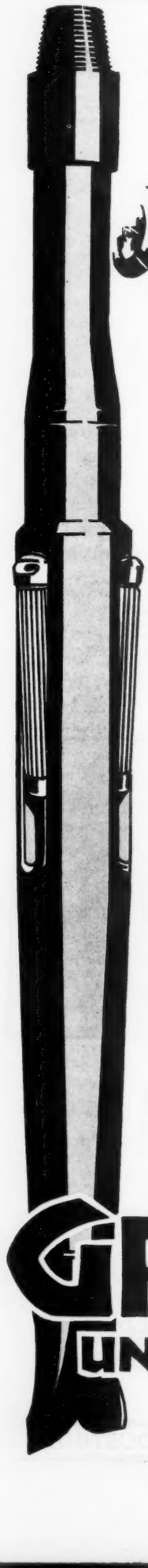

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lease, the discovery well was opened. No other production resulted in this region.

Scattering Results

Clay County, far removed from the oil belt of the state in the northeast part of Kansas introduced a new note into production when a well in that county found pay at a shallow depth last year. Roth & Faurot's No. 1 Bradberg, SE cor. NW, Section 21-9-4e, made 30 bbls. daily from a chat found 890-915 feet. There was some trouble with tubing and rods in this well before it could be put to pumping, but these were overcome, and the well is now reported as making regular production. There is a possibility that the owners of the well will use its production as fuel to be utilized for the boiler in drilling of another well which will be a deep test.

A well which started some Bartlesville sand development in Elk County was the Minnehoma Oil Co.'s No. 2 Ferguson, NW cor. SW, Section 3-31-8. This was a well in rather old territory and it found the sand 1,918-1,934 feet and began flowing 700 bbls. daily. There were several wells drilled around this well, but none of them equalled the output of the No. 2 Ferguson.

KANSAS

Completed Wells in 1928 by Counties

County—	Comp.	Prod.	Dry	Gas
Anderson	87	3,654	21	1
Butler	117	13,468	52	0
Cowley	114	1,262	60	34
Chautauqua-Elk	98	3,732	36	14
Greenwood	226	15,642	83	12
Marion	83	4,741	42	0
Montgomery	90	1,252	20	11
Russell	31	5,913	8	1
Sumner	143	47,116	29	12
Dickinson	7	0	7	0
Morris	10	30	6	3
Barber	4	0	3	1
Osborne	2	0	2	0
Coffey	12	90	5	3
Woolson	16	80	12	0
Bourbon	13	17	7	4
Neosho	4	2	3	0
Linn	3	15	2	0
Chase	3	0	2	1
McPherson	19	380	6	11
Allen	11	30	5	0
Miami	10	17	6	1
Sedgwick	5	3,270	2	0
Rooks	11	269	7	0
Lyons	7	0	7	0
Meade	1	0	1	0
Harvey	1	0	0	1
Labette	5	3	4	0
Ellis	5	0	5	0
Wilson	4	30	3	0
Reno	1	0	1	0
Seward	3	0	1	2
Clark	1	0	0	1
Jackson	1	0	1	0
Riley	1	0	1	0
Franklin	4	0	2	2
Clay	1	20	0	1
Geary	2	0	2	0
Osage	1	0	1	0
Total	1,157	101,043	455	115

Completed Wells by Months

	Comp.	Prod.	Dry	Gas
January	137	14,337	47	11
February	94	10,615	34	10
March	115	13,191	36	16
April	116	18,834	45	8
May	61	5,378	19	5
June	101	6,176	44	9
July	131	7,519	59	10
August	91	5,140	34	14
September	66	6,280	22	7
October	100	5,273	45	13
November	99	5,175	48	8
December	46	3,125	22	4
Total	1,157	101,043	455	115
Total 1927	1,333	98,253	569	79
Difference	176	2,790	114	36

Past Few Years Results

	Comp.	Prod.	Dry	Gas
1926	2,338	173,674	784	96
1925	2,003	207,880	636	86
1924	1,125	92,668	396	79
1923	1,405	61,372	535	63
1922	1,640	74,391	497	86
1921	1,380	95,789	353	118

OVERPRODUCTION IN CALIFORNIA IN 1928

(Continued from Page 184)

more or less of a stabilizing effect in the past but under independent operation gasoline prices are bound to show a considerable fluctuation as there is no way of maintaining equalized quotations. Total export shipments out of California during 1928 were on a par with 1927, although the various commodities showed considerable difference. Crude oil and fuel oil liftings were down in 1928 but gasoline shipments to foreign ports showed a substantial gain. Intercoastal shipments to Atlantic and Gulf Coast ports showed a very severe decline in 1928, decreased liftings of crude oil, fuel oil, Diesel and gas oil being directly responsible. The movement of gasoline to the East Coast, on the other hand, showed a very substantial gain. California refiners built up a very good export trade in Australia and New Zealand during 1928 and a further improvement is anticipated for 1929, although competition will undoubtedly be more severe. The Atlantic Union Oil Co., owned jointly by the Atlantic Refining Co. and the Union Oil Co. of California, completed its expansion work in Australia early in the year and the first consignment left Los Angeles Harbor on April 8, 1928. The Standard and others have also catered to this new trade with success.

CENTRAL WEST

(Continued from Page 85)

No. 1-3,390 on the H. L. Hanley farm, Section 15.

In Fairfield County, Berne Township, the City Natural Gas Works found a small gas volume on the W. M. and Hattie Brucker farm, Section 2, at from 2,302-10 feet.

In Guernsey County, Westland Township, the Kemrow Co.'s No. 1 is drilling a test on the George Scott farm, Section 7. Ohio Fuel Gas Co. is drilling No. 3-3,419 on the R. F. Dennis farm, Section 16, Jackson Township, and Jewell and others are drilling No. 2 on the Isaac J. Oldham farm, Section 4, Cambridge Township.

The Jupiter Oil Co. drilled a wildcat on the John H. Brown farm, and had a nice gas well, but it was spoiled. This well found the top of the Berea sand at 958 feet, with first gas at 960 feet and second gas at 991 feet, where it showed a volume of 2,180,000 feet natural, but water broke in and drowned out the gas. The total depth of the hole was 1,022 feet.

Morgan County

Only one completion was reported from Morgan County, Hollowell and others' No. 1 Thomas Ball, Section 27, Marion Township. This well was shut down at 1,450 feet for some time, but drilling started and gas was found in only small quantity in the second Berea at from 1,605-27 feet and drilled to a total depth of 1,631 feet. Ohio Fuel Gas Co. made locations for No. 1-3,414 on the Frank Hart farm, fractional Section 34, and for No. 103,415 on the T. M. Frisbay farm, Section 23. The Kemrow Co. is drilling No. 5 on the H. D. and S. E. Hoffman farm, Section 35, and Chouquill and others are drilling No. 4 on the George Johnson farm, Section 4, same township. The Kemrow Co. is also drilling No. 4 on the H. D. Hoffman, Section 29. In Penn Township the Maubourg Development Co. is drilling a second test on the Fred E. and Bertha Williams farm, Section 14, and the Ohio Fuel Gas Co. made a location for No. 1-3,416 on the Ada Haper farm, Section 2.

Late advice is that the Pure Oil Co. has drilled in a very fine well on the William Powers farm, Section 4, Jackson Township, Muskingum County, which produced 186 bbls. initial and about 125,000 feet of gas at a depth of from 2,932-76 feet.

KENTUCKY-TENNESSEE

(Continued from Page 85)

ner of the C. M. Justice farm, south of Bowling Green, pumped but 1 bbl. at 966 feet.

In the Scottsville Field of Allen County, near Settle and Gainesville in the northeastern part of the county, J. D. White's No. 10 on the J. B. Williams farm, pumped 1 bbl. at 363 feet. D. D. Deffenbach's second test on the Lunchford farm, was dry at 384 feet. I. J. Tapp and others got one of the same kind in No. 2 on the M. E. Hood farm, at 277 feet, while the Snowden-McSweeney Co.'s No. 34 T. J. Oliver farm, pumped 3 bbls. at 402 feet. D. D. Deffenbach has a fishing job at No. 3 Lunchford Beam farm. Harley & Contsworth are testing out their No. 1 D. Welch 10 acres, and drilling No. 2 on the same lease.

In Daviess County, Owensboro Field, Daley & Lowman's No. 3 on the Emmett Burton farm, in the Burton Pool, is reported showing for 100 bbls. or better. Wood Oil Co.'s No. 1 on the Jim Cooper farm, 2 miles northeast of the Burton Pool, is showing for a dry hole.

In the Hartford Field of Ohio County, the Ohio Oil Co.'s No. 20 on the James

C. Ellis farm, in the Ambrose Pool, is reported showing for 30 bbls. or better. Same company's No. 6 on the E. L. Patton 54 acres, in the Whittaker Pool, reported at 16 bbls. initial at a total depth of 590 feet after a shot. In this well a string of 560 feet of casing was set and the sand found from 565 to 585 feet. Near Friendship Church area, Dr. F. M. Sirman's Nos. 8 and 9 on the Nancy Farmer farm, 3 miles north of Fordsville, reported at 35 bbls. each. The Creek Drilling Co.'s No. 5 C. D. Westerfield farm, in the King Pool, was dry at 605 feet. Ray Bigler and others' No. 4 M. Roach 22 acres, in the Whittaker Pool, was a duster at 600 feet. J. E. Marsh and others' No. 2 on the Ada Kelley 60 acres, in the Kelley Pool, was a dry hole at 450 feet, while the Snowden-McSweeney Co.'s No. 4 Arella Ralph 78 acres, was a duster at 765 feet.

Field Pickups

The runs of the Cumberland Pipe Line Co. for the week closing January 12, from the Eastern Kentucky fields, amounted to 42,607.14 bbls.

The Wood Oil Co., Inc., is making preparations to start a test on the Ford farm, in the Utica Pool of Daviess County and in the vicinity of the discovery well on the Brown farm, in the Brown Pool. This location is to the north of the pool and is another wildcat venture closer to Owensboro. This is in deep territory and will require a few weeks to bring in a well.

The Eastern Gulf Oil Co.'s No. 4 on the M. C. Ruby 125 acres, in Daviess County, is in the sand and almost ready for a shot. This is in the Red Hill District.

Several wells in the Sunnydale Field of Ohio County are ready for shots as soon as the glycerin wagons can get to them.

It is reported that M. B. French and others have sold to Archie H. Carpenter of Lexington, and W. Cheanault Cockrell of Louisville, their production and leases in Ohio, Daviess and Henderson counties, consisting of around 4,000 acres of leases and approximately 600 acres of almost certain producing acreage. The producing leases are chiefly in the Whittaker Pool in Ohio County and south and southwest of Whitesville, in the Jones Pool, in Daviess County. The price has not been stated.

The Petroleum Co.'s No. 9 on the E. L. Burns farm, in the Brown Pool, of Daviess County, is in the sand ready for a shot..

An interesting wildcat will be drilled in the Spice Knob area in the eastern section of Daviess County. A large rig shipped in from Cumberland County and set up on the W. L. Bell 111 acres, southeast of Spice Knob. Thomas C. Morgan is the operator and Charles Burgess, of Monticello, is the head driller, and one of long experience in the Monticello Field of Wayne and adjoining counties. This well will be drilled to a depth of 750 feet of 10-inch hole, in case the owners want to make a deep test of it. This test will determine to some extent the productivity of that section of Daviess County, where it has been believed by geologists who have gone over the locations to be in a direct line of the Pellville and other Hancock County pools, that have been successfully pumped for several years.

James C. Ellis of Owensboro, according to reports has purchased the big Barrett farm, in Henderson County, thought to be well located for oil or gas.

McMahon & Combs are drilling No. 3 on the Fuqua farm, in the Jones Pool, in Daviess County. The Ohio Oil Co. is drilling No. 1 on the Frank Higdon farm in the same county.

PLAN GRADUATED TAX BASED ON RETAIL PRICE

(Continued from Page 258)

cluded within the price and not added to it.

The graduated scale continues, imposing 4½-cent tax when the price is more than 15 cents and not exceeding 16 cents; over 16 cents and up to 17 cents, 5¼ cents tax; 17 cents to 18 cents, 7½ cents tax; more than 18 cents, 7½ cents tax plus 1½ cents a gallon for each additional cent or fraction thereof charged the public. Thus 20-cent gasoline would mean a tax of 10½ cents a gallon, to come out of the 20-cent price charged the public. The oil refiner or wholesaler would not get quite half the price charged for the gasoline.

The second bill provides for permits to be issued by the Comptroller for filling stations and stipulates that the present number may be increased only when the population increases and then one new station to every new 2,500 inhabitants.

MAY USE FUEL OIL AS MOTOR BUS FUEL

(Continued from Page 258)

will, without adjustment of any kind. This is achieved through the use of a gas-generating device, developed by the Mitten Management from the invention of Ernest Godward, an Australian inventor. Experiments and research work on this device have been in progress during the past two years.

The apparatus, as now evolved, is described by Mr. Queeney as follows:

"It consists of an aluminum pot in which is set a nest of stationary thin curved plates radiating from a central core. The pot is heated by the exhaust of the engine. The fuel is drawn from a standard carburetor through the inside of the pot over the surface of the warm plates, where it is converted into a dry gas and whence it passes through the intake manifold into the cylinders."

The gas being dry, Mr. Queeney explained, there is no boiling of the motor and months of tests with 20 buses which were run nearly 300,000 miles over steep, hilly routes failed to show any accumulation of carbon in the cylinder valves or any evidence of a wet mixture in the manifold. Moreover, these tests revealed an increase in horsepower up to 15 per cent above the motor's original maximum.

In addition, the new device possesses the advantage of being able to run equally well with either gasoline or fuel oil. Thus a driver running out of fuel oil on the road has only to fill the tank with gasoline at the first filling station.

Mr. Queeney estimates that there are 85,000 buses operating at present in the United States. Were these buses to use fuel oil instead of gasoline, the aggregate fuel bill alone would show a saving of close to $50,000,000 annually, he declared. Mr. Queeney asserted further that in addition to the gas generator, an apparatus had been developed in the course of the company's experiments which acts as a check on engine efficiency; that is, any unburned gas present in the exhaust, represents a definite power loss. This device, now in use, also measures the carbon dioxide in the exhaust gas, thereby furnishing a further check on the carbon monoxide content of the exhaust gases.

1928 YEAR OF LARGE INITIAL PRODUCTION

(Continued from Page 111)

such oil as could be marketed without upsetting physical or financial conditions.

Many New Domes Discovered

Extensive geophysical exploration in the Gulf Coast division of Texas and Louisiana resulted in the discovery of many salt domes all of which will come in for drilling exploration in good time. These discoveries might never have been made had not modern scientific methods been brought into play. Six of the geophysical domes have been proven productive of oil. New pools opened in the course of the year were DeWalt in Fort Bend County; Fannette, Jefferson County; Gay Hill, Washington County; Long Point, Fort Bend County, Raccoon Bend, Austin County; all in Texas and Sorrento, Ascension Parish; Bayou Bouillon, St. Martins Parish and Hackberry Dome, (an old discovery), Cameron Parish all in Louisiana. Fannette and Long Point were short lived. Sorrento was the first Gulf Coastal pool east of the Mississippi River. The production of the

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pool was held down to pipe line facilities. It was opened with a 4,000-bbl. well and three other good wells were completed before the close of the year. In all 1,420 wells were completed in the Coastal division an increase of 275 over the record of the year before. The 777 oil wells completed had an average initial production of 555.8 bbls. per well, as against 785.6 bbls., the average per well in the previous year when the Spindletop deep sand was yielding largely.

Developing Inland Salt Domes

Every year since the discovery of the Mexia Field in Limestone County, Texas, the East Central Texas area has developed one or more pools. Inland salt domes have been found in Anderson, Cherokee, Smith, Rusk, and Van Zandt counties and the Boggy Creek area on the Anderson-Cherokee County line was partly developed last year although the first well which started off at 8,000 bbls. a day but soon went to water, came in in April 1927. Ten new producing wells were completed in 1928 on the Anderson County side and one in the Cherokee County end of the field. Development work was carried on in 16 counties but out of 84 wells completed 67 were dry and 4 were gas wells, leaving only 13 oil wells in the whole East Central Texas division.

New Production in Southwest Texas

Oil was found in a score of places in the large Southwest Texas division last year but conspicuous among the oil areas was the opening and partial development of the Joe Bruner Pool in Caldwell County not far from the Luling Field. This discovery has developed into the major class of pools producing over 10,000 bbls. a day before the end of the year and had passed the 13,000-bbl. mark when this was written. The Joe Bruner Pool is an Edwards lime development and the third Texas pool to produce from that formation, Luling being the most important of the Edwards lime fields. This year should see the most of the other new discoveries further tested. Southwest Texas includes an area as large as most Eastern States and much of it is geologically favorable and will be given many tests in the years to come.

Gas the Leader in 1928

With the exception of the development of the Champagnolle Field in Union County, Arkansas, the oil business in the Arkansas-North Louisiana division was in the doldrums in 1928, but 292 gas wells were completed in the territory which had an initial open flow of 4,264,-500,000 feet, or an average of over 14,-600,000 feet per well, which kept the territory in the forefront in importance. Eight hundred miles of trunk gas lines were built out of the gas fields to market the product of the wells. The Champagnolle Field was opened in the first half of the year, but it did not come up to first expectations and before the close of the year was well defined. North Louisiana suffered a bad slump in new production and in the number of wells that were drilled for oil. Only 528 completions were recorded as against 726 in 1927 and the initial production of the 64 oil wells was 10,585 bbls.

California Again Overproduced

For the sixth successive year development work in California resulted in an overproduction of crude. Deep sand exploration in the Santa Fe Springs Field revived that famous oil-producing area and brought the field back to a place among the most important pools in the country. Two productive zones were uncovered below the old Meyer horizon in Santa Fe Springs and deeper drilling threatens to bring forth production from the same horizon that proved so prolific at Long Beach. Lawndale, Elwood, Kettleman Hills and Fruitvale, were all important finds in 1928. The result of wildcatting and deeper drilling was just beginning to show at the close of the year. It will be midyear 1929 before the full force of it will be seen in excessive production. The new production uncovered last year averages high in gravity. The oil in Kettleman Hills runs 55 degrees and above.

Rocky Mountain Discoveries

A falling off in drilling in 1928 is noticeable in the record of the Rocky Mountain fields but a number of new pools were brought in in Montana, Wyoming, Colorado and New Mexico. Old pools were extended and deeper horizons proven productive. A light oil pool was opened on the Alkali Butte Dome in Fremont County, Wyoming; a new gas field in the same county, black oil pools on the Frannie Dome and the Sunshine Dome in Park County and at Bolton Creek in Natrona County. The Oregon Basin Field was extended, likewise the black oil area in Grass Creek. These were the most important events in Wyoming. In Colorado the South McCallum Dome in Jackson County was found productive of a low temperature gas and a high gravity oil. Lea County, New Mexico, developed several spots productive of oil or gas, or both, but the year passed without a large new pool having been opened in that large territory where a second Hendricks Pool was believed, and is yet believed by some, to be a possibility. In Montana the Pondera Pool in Pondera County was the most important find of the year.

Busy in Central West

The Central West division, which includes the Lima Field, Central Ohio, Indiana and Illinois, completed 1,264 wells last year, or 152 more than the year before, and the initial production increased 2,794 bbls. There was an increase of 65 dry holes and 85 more gas wells. The development of the Murphy Pool in Seneca County, north of Tiffin, Ohio, was the outstanding feature of the year.

Kentucky's Increased Activity

Ohio and Daviess Counties and to a lesser degree Barren County, Kentucky, experienced a very active year. A total of 519 wells were completed in Ohio County, 345 in Daviess and 140 in Barren. The oil wells complted in Ohio and Daviess Counties were of relatively large initial production, the average having been about 53 bbls. per day.

Forty-one new oil wells were drilled in Clay and Jackson County, Tennessee, and five good gas wells were completed in Clay County.

Eastern Fields

Notwithstanding a higher price for oil in the fields producing Pennsylvania grade crude the completions last year in the old Eastern fields covering New York, Pennsylvania, West Virginia and Southeastern Ohio numbered only 4,160 as against 4,724 the year before. A sensational little area in the ancient Butler County field in Pennsylvania which yielded wells of several hundred barrels initial production was a feature of the year. The deep sand territory in Harrison Township, Ohio, a 1927 discovery, was developed last year. It was a town lot operation and close spacing and excessive drilling soon brought the initial production down, but the district produced in paying quantity as a whole. In New York the special feature of the year was the discovery of deep gas in the Allegany Field in the 3,900-foot horizon. It was at first believed to be producing from the Onondaga limestone but a later test was dry in the same horizon and was being sent deeper to the Onondaga level.

S. H. BOWMAN DIES

Samuel Hamilton Bowman of Jackson Township, Venango County, passed away at his home in Akron, Ohio, at the age of 76. He was active in the early oil development of Venango and adjoining counties and was one of the first operators to harness the natural gas waste and convert it to commercial and domestic use. He was also instrumental in bringing about a great saving of expense and energy in operating pumping wells by a coupling-up process, from one central power plant, instead of the single unit plan. His last activities were in the Pittsburgh district.

W. P. McCOY DEAD

William P. McCoy, age 87, died at the home of his grandson, L. A. McCoy in Olean, N. Y., January 21. Mr. McCoy was an oil producer and lived at Indian Creek and Rock City for 50 years, retiring from the oil business about 11 years ago.

NEW LOCATIONS IN TEXAS PANHANDLE AND NORTH AND WEST TEXAS FIELDS

TEXAS PANHANDLE

Carson County

Delmar Oil Co.'s No. 3 J. L. Noel, 990 feet south and 330 feet west of the NE cor. of the W half of the SE of Section 198, Block 3, I.&G.N. Survey. Skelly Oil Co.'s No. 11 H. Schafer, 330 feet north and 1,650 feet east of the SW cor. of Section 88, Block 4, I.&G.N. Survey.

Gray County

Nabob Oil Co.'s No. 2 J. S. Morse, 330 feet north and 660 feet east of the SW cor. of the SW of Section 67, Block 25, H.&G.N. Survey. A. R. Anderson and others' No. 1 H. Heithholt, at the C of the NE of the SW of Section 152, Block 3, I.&G.N. Survey. Midwest Exploration Co.'s No. 1 J. Bowers-"B", 330 feet south and 1,650 feet west of the NE cor. of Section 93, Block B-2, H.&G.N. Survey. Wilcox-Pampa Oil Co.'s No. 4 Combs & Worley, 330 feet north and east of the SW cor. of Section 60, Block 3, I.&G.N. Survey.

Hutchinson County

Phillips Petroleum Co.'s No. 2 C. H. Jasper (Pat), 980 feet north and 3,660 feet west of the SE cor. of Section 23, Block M-23, T.C.R.R. Survey.

Wheeler County

Wisch Kamper's No. 1 R. Adamson, at the C of the NE of the SE of Section 50, Block 17, H.&G.N. Survey.

NORTH CENTRAL AND WEST TEXAS

Archer County

D. O. Johnson and others' No. 5 L. F. Wilson "C", 150 feet north and 750 feet west of the SE cor. of Lot 12, Wilson's Geraldine Subdivision. Magnolia Petroleum Co.'s No. 1 W. H. Chilson, 300 feet north and 875 feet east of the SW cor. of Section 2, Denton County School Land, League 3, A-117, being 150 feet north and west of the southeast corner of their 60-acre lease. Payne and others' No. 7 Mrs. J. E. Parrish, 750 feet north and 150 feet west of the southeast corner of their 30-acre lease out of the S half of Section 2, S.P.R.R. Survey, A-1,004. Freeman & Grebin and others' No. 2 A. M. Hennig, 450 feet south and 150 feet west of the northeast of the south 60 acres of Section 21, G. P. Meade Subdivision, L. M. Pasture Survey. L. P. Hammond's No. 1 D. L. Wolf, 2,125 feet north and 1,175 feet west of the SE cor. of Section 2, S.P.R.R. Survey, A-1,300. Petroleum Producers Co. and Hines and others' No. 2 Moritz Phillips, 150 feet south and east of the northwest corner of the north 25 acres of the west 50 acres of the M. Phillips 220-acre tract and located in Section 6, B.B.B.&C. Survey, A-825. F. P. Rose's No. 4 J. R. Garvey, 450 feet north and 150 feet west of the southeast corner of the east 60 acres of the north 160 acres of Section 1,956, T.E.&L. Survey.

Brown County

M. T. Anderson's No. 1 J. P. Newton, 150 feet north and 3,300 feet west of the southeast corner of Lot 2, heirs N. B. Mitchell Survey No. 150. Young Brothers-Alexander and Woodley Petroleum companies' No. 20 Roy Hickman, 150 feet south and 450 feet west of the northeast corner of their 100-acre lease out of the J. McGloin Survey No. 801. A. D. Bruce's No. 1-A A. B. Shields, 2,350 feet north and 750 feet east of the southwest corner of the John C. Brown Survey, A-74. Garrett & Hammon's No. 2 T. B. Starkley, 250 feet north and 150 feet west of the southeast corner of the N half of the Juan Armendaris Survey No. 602, A-1,005. W. W. Hawkins and others' No. 1 J. L. Pliler, 150 feet south and 2,063 feet east of the most westerly northwest corner of the J. L. Pliler 149-acre tract out of the heirs B. Hear Survey No. 326. Simons-Jones & Longree's No. 1 T. F. Fitzgerald, 150 feet north and east of the southwest corner of the T. F. Fitzgerald 10-acre tract out of the John Robinett Survey, A-775.

Callahan County

DeLange & McKague's No. 1 N. Johnson, 150 feet north and west of the SE cor. of the NW of Section 80, Comal County School Land. Dickey Oil Co.'s No. 1 R. D. Williams, Section 24, 905 feet south and 1,423 feet east of the NW cor. of the SE of Section 24, Deaf & Dumb Asylum Land. Gibson & Johnson's No. 1 V. Hughes, 150 feet south and 450 feet west of the NE cor. of the SW of Section 129, B.B.B.&C. Survey. Holmes and others No. 1 P. G. Hatchett, 150 feet north and 750 feet east of the SW cor. of the P. G. Hatchett tract out of Section 31, Deaf & Dumb Asylum Land. Same company's No. 3 A. Hickman, 1,100 feet south and 450 feet west of the northeast corner of the J. W. Jones Survey No. 2. Jackson and others' No. 1 R. O. Eubanks, 150 feet south and east of the NW cor. of the SE of Section 48, Comal County School Land. Moutray Oil Co.'s No. 7 P. G. Hatchett, 450 feet south and 150 feet west of the NE cor. of the NW of the NW of Section 29, Deaf & Dumb Asylum Land. Same company's No. 8 P. G. Hatchett, 750 feet south and 150 feet west of the NE cor. of the NW of the NW of Section 29, Deaf & Dumb Asylum Land. Same company's No. 9 P. G. Hatchett, 150 feet south and 410 feet west of the NE cor. of the NW of the NW of Section 29, Deaf & Dumb Asylum Land. Same company's No. 10 P. G. Hatchett, 450 feet north and 410 feet west of the SE cor. of the NW of the NW of Section 29, Deaf & Dumb Asylum Land.

N. Neeb's No. 1 E. D. Henderson, 150 feet north and east of the SW cor. of the NW of Section 59, Comal County School Land. Newman & Hill's No. 1 W. C. Powell, 150 feet south and east of the NW cor. of Section 108, B.B.B.&C. Survey. Reiter-Foster Oil Co.'s No. 16 P. G. Hatchett, 676 feet north and 945 feet west of the SE cor. of the SE of the SW of Section 24, Deaf & Dumb Asylum Land. Same company's No. 17 P. G. Hatchett, 676 feet north and 645 feet west of the SE cor. of the SE of the SW of Section 24, Deaf & Dumb Asylum Land. Ed Stratton's No. 1 S. J. Smith, 1,170 feet south and 1,470 feet west of the NE cor. of Section 71, Comal County School Land. The Texas Company's No. 17 P. G. Hatchett, 150 feet south and 440 feet west of the NE cor. of the SW of the NW of Section 29, Deaf & Dumb Asylum Land.

Coleman County

Morrison-St. John & Simms Petroleum Co.'s No. 1 A. E. Young, 150 feet north and 450 feet west of the SE cor. of the SW of the NE of the B. F. Greer Survey No. 192. Prescott and others' No. 1 William Goodwin, 1,170 feet south and 1,170 feet east of the southeast corner of the C. L. Davenport 404-acre tract out of the W. T. Dunlavy Survey No. 259, and located in the Johann Faxell Survey No. 83. Shell Petroleum Corp.'s No. 1 Mrs. V. M. Newsom, 150 feet south and east of the northwest corner of the Mrs. V. M. Newsom 83.02-acre tract out of the R. Cochran Survey No. 269.

L. Eppler and others' No. 1 F. E. Sampson, 150 feet south and west of the northeast corner of the F. E. Sampson 121.8-acre tract out of the O. H. Gibbs Survey No. 272. J. McCamey and others' No. 1 Sealy & Smith, 908 feet south and 1,780 feet east of the most westerly NW cor. of Section 35, Block 1, G.H.&H. Survey. H. Samuels' No. 2 J. A. Robertson, 150 feet north and 1,700 feet west of the southeast corner of the J. A. Robertson 289.5-acre tract out of the E. Votaw Survey No. 224. R. V. Whiteside's No. 1 J. C. Lovelady, 1,650 feet north and 700 feet west of the southeast corner of the J. C. Lovelady 308.5-acre tract out of the Buenita Alderata Survey No. 273.

Cooke County

Kewanee Oil & Gas Co.'s No. 5 R. J. Timmis "A," 150 feet south and 1,048 feet west of the most easterly northeast corner of the E.T.R.R. Survey No. 5, A-363, being 150 feet south and east of the northwest corner of their 80-acre lease. Same company's No. 6 R. J. Timmis "A", 450 feet south and 150 feet west of the northeast corner of their 80-

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acre lease "A" out of the E.T.R.R. Survey No. 5, A-363. Same company's No. 1 R. J. Timmis "B", 150 feet south and 1,348 feet west of the most easterly NE corner of the E.T.R.R. Survey No. 5, A-363, being 150 feet south and west of the northeast corner of their 104-acre lease "B". Pure Oil Co.'s No. 4 J. C. Embry, 150 feet north and 520 feet west of the southeast corner of their 80-acre lease out of the T. J. Moss Survey A-736. Shell Petroleum Corp.'s No. 2 H. L. Dennis, 450 feet south and 150 feet east of the northwest corner of the T. J. Hutchinson Survey, A-484. Westheimer and others' No. 1 J. C. Cox, 150 feet north and east of the most westerly southwest corner of the S. Hernandez Survey, A-437.

Howard County

Cosden & Co.'s No. 2 Dora Roberts "C," 1,540 feet north and 990 feet west of the SE cor. of Section 128, Block 29, W.&N.W.R.R. Survey.

Irion County

Signal Oil Co.'s No. 2 J. D. Sugg, 5,240 feet south of the most southerly north line and 996 feet east of the west line of Section 23, Block 27, H.&T.C. Survey.

Jack County

Sheppell Oil Co.'s No. 1 J. Younger, 600 feet north and 240 feet west of the SE cor. of Section 19, Wood County School Land, A-875. Panhandle Refining Co.'s No. 2 J. T. O. Smith, 810 feet south and 330 feet east of the northwest corner of the J. T. O. Smith 169.5-acre tract out of the I. Hughson Survey, A-256. Petroleum Producers Co. and The Texas Company's No. 1 Mary A. Bryson, 330 feet north and 1,260 feet west of the most westerly southeast corner of the M. A. Bryson 273-acre tract out of the I. Hughson Survey, A-256, being 330 feet north and east of the southwest corner of their 153-acre tract. Same companies' No. 2 G. L. Jones, 330 feet south and east of the northwest corner of the G. L. Jones 90-acre tract out of the Isaac Hughson Survey, A-256.

Pecos County

Matador Oil Co.'s No. 3 Mrs. M. A. Smith, 2,310 feet south and 990 feet west of the NE cor. of Section 24, Block 194, G.C.&S.F. Survey. Pecos Valley Oil Co.'s No. 2 Pecos Valley Oil Co., 1,620 feet northeast of the southwest line and 1,320 feet southeast of the northwest line of Section 22, Block 10, H.&G.N. Survey. California Co.'s No. 3 M. A. Smith, Lease 1, (Section 21), 1,789 feet south and 1,005 feet east of the NW cor. of Section 21, Block 194, G.C.&S.F. Survey. Same company's No. 7 M. A. Smith, Lease 1, (Section 23), 998 feet north and 1,738 feet east of the SW cor. of Section 23, Block 194, G.C.&S.F. Survey.

Reagan County

Big Lake Oil Co.'s No. 1-C University Land, 2,598.5 feet south and 250 feet west of the NE cor. of Section 1, Block 2, University Land. Same company's No. 2-C University Land, 2,109 feet north and 920 feet west of the SE cor. of Section 1, Block 2, University Land. Same company's No. 3-C University Land, 625 feet south and 250 feet west of the NE cor. of Section 1, Block 2, University Land.

Ward County

Atlantic Oil Producing Co. and Delmar's No. 1 S. F. Hayzlett, 150 feet northwest of the southeast line and 150 feet southwest of the northeast line of the northwest 160 acres of the southwest 320 acres of Section 17, Block 5, H.&T. C. Survey. J. H. L. Oil Co.'s No. 1 S. F. Hayzlett, 150 feet southeast of the northwest line and 150 feet southwest of the northeast line of the southwest 80 acres of the southeast 160 acres of the southwest 320 acres of Section 17, Block 5, H.&T.C. Survey.

Wichita County

Gulf Production Co.'s No. 2 S. Mitchell and others, 750 feet south and 150 feet east of the northwest corner of the east 105.5 acres of John T. Lewis Survey, A-400. Coleman & Coppock's No. 20 Kemp & Kempner, 800 feet south and 510 feet west of the northeast corner of Block 82, Kemp Wichita Valley Land. Hammon & Garrett's No. 7 Mitchell and others, 790 feet south and 200 feet east of

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In the Earlsboro field—at 1900 feet—in hard broken lime—a hole full of junk—no rock bit on the rig—couldn't get junk out with the bucket—so had to run a "K-P." On top of all of this the pump broke down. But this didn't faze the "K-P"—it went 22 feet through lime—broke through shell—over 5½ hours of this—and then made 70 feet more before coming out.

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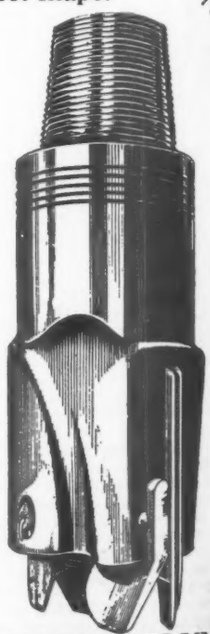

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Another exclusive feature is the U-bend, shown at the lower right. This U-bend is cast in one piece, and is a separate unit, providing a perfect stream line flow without the use of deflectors.

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Our line of Return Bend fittings includes more than fifty designs, shapes and sizes, for all pressures and temperatures. Your special needs are sure to be included in our stock.

Make sure that the fittings you use are backed by service. The Key Service Department is fully equipped to care for any emergency you may encounter.

Key Boiler Equipment Co.

27th and McCasland Ave., East St. Louis, Ill.

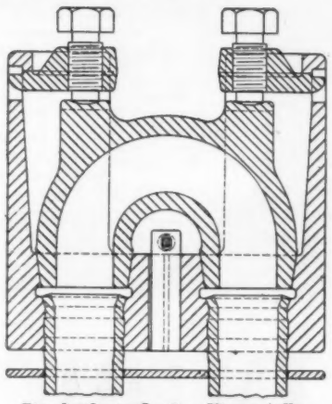
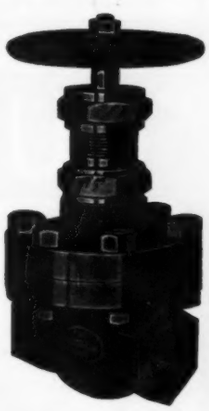


Fig. 2—Cross Section View of Key Sectional Type Stream Line Flow Fitting.

Fig. 3—U-Bend Used in Key Sectional Type Stream Line Flow Fitting.

LUDLOW VALVES



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ALL IRON CAST STEEL

ALL SIZES AND PRESSURES

FOR REFINERY PIPE LINE DRILLING & HAND CYLINDER ELECTRICAL OPERATED

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Solid Woven Cotton Belting
Staying quality proven in the hardest oil field service.
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CRANE STANDARD VALVES AND FITTINGS MEET ALL ORDINARY REQUIREMENTS
CRANE
IF SPECIAL MATERIALS ARE NEEDED, CRANE CO. MAKES THEM TO ORDER

the northwest corner of the John T. Lewis Survey, A-460. Humble Oil & Refining Co.'s No. 10 W. H. Taylor, 454 feet north and 450 feet west of the southeast corner of Block 81, Kemp Wichita Valley Land. Producers Drilling Co.'s No. 1 Allen & Kemp, 150 feet south and west of the northeast corner of the south half of Lot 11, Block 26, Kemp Wichita Valley Land. United Producers Co.'s No. 9 W. L. Hodges "A," 450 feet south and 450 feet east of the northwest corner of Lot 9, W. L. Hodges Subdivision, out of Section 1, H.&T.B. Survey, A-139.

Wilbarger County

Derby Oil Co.'s No. 1 W. T. Waggoner "D," 205 feet south and east of the NW cor. of the NE of the SE of Section 43, M.E.P.&P. Survey. Fain-McGaha Oil Corp.'s No. 32 W. T. Waggoner "S," 175 feet south and 685 feet east of the NW cor. of the NW of the SE of Section 24, Block 4, H.&T.C. Survey. Same company's No. 2 W. T. Waggoner "W," 150 feet north and 450 feet east of the SW cor. of the NE of Section 32, Block 4, H.&T.C. Survey. Waggoner Refining Co.'s No. 5 W. T. Waggoner "K," 932 feet north and 205 feet west of the SE cor. of Section 31, Block 4, H.&T.C. Survey. Wilbarger Oil Co.'s No. 1 W. T. Waggoner "B," 160 feet north and west of the SE cor. of the SW of Section 55, Block 4, H.&T.C. Survey.

Winkler County

Gulf Production Co.'s No. 1 W. F. Scarborough, 330 feet north and east of the SW cor. of the SE of the NE of Section 1, Block C-22, School Land. Independent Oil & Gas Co.'s No. 1 Tobe Morton, 2,310 feet south and 1,650 feet west of the NE cor. of Section 27, Block B-12, School Land. Shell Petroleum Corp. and others' No. 4 W. F. Scarborough, 2,310 feet north and 1,650 feet west of the SE cor. of Section 1, Block C-22, School Land.

Young County

Booth Oil Co. and others' No. 4 W. M. Graham, 450 feet north and 750 feet east of the SW cor. of Section 193, T. E.&L. Survey. Carter & Ruff's No. 1 L. F. Gragg, 1,050 feet south and 450 feet east of the northwest corner of the south 175 acres of the east 350 acres of the L. F. Gragg 724.5-acre tract out of the A. Rohus Survey, A-240. Panhandle Refining Co.'s No. 1 W. D. Weems, 1,903 feet north and 1,550 feet west of the SE cor. of Section 1,911, T.E.&L. Survey. R. R. Rhodes and others' No. 1 E. M. Eichelberger "A," 150 feet south and 1,550 feet west of the NE cor. of Section 1,449, T.E.&L. Survey. E. R. Riggs and others' No. 10 O. L. Sweet, 450 feet south and 2,000 feet west of the NE cor. of Section 1,488, T.E.&L. Survey. Robert Oil Corp.'s No. 1 G. R., C. K., and E. G. Garvey, 450 feet north and 750 feet east of the SW cor. of Section 1,859, T.E.&L. Survey. W. R. Stafford's No. 1 R. A. Petty and H. P. Miller, 150 feet north and west of the southeast corner of the west 32.5 acres of the north 65 acres of the east 262 acres of Section 3,404, T.E.&L. Survey. W. E. White's No. 2 Mrs. W. E. White, 150 feet south and west of the NE cor. of the W half of Section 258, T.E.&L. Survey.

Corrected Locations

In Coleman County: E. J. Cunningham and others' No. 13 G. W. and L. P. Jennings "A," 200 feet north and 3,500 feet west of the southeast corner of the A. S. Lipscomb Survey, No. 94. E. J. Cunningham and others' No. 1 G. W. and L. P. Jennings "A," 1,302 feet south and 2,000 feet west of the northeast corner of the A. S. Lipscomb Survey, No. 94. Same company's No. 2 G. W. and L. P. Jennings "A," 1,209 feet north and 3,500 feet west of the southeast corner of the A. S. Lipscomb Survey, No. 94. Same company's No. 3 G. W. and L. P. Jennings "A," 1,209 feet north and 3,100 feet west of the southeast corner of the A. S. Lipscomb Survey, No. 94. Same company's No. 4 G. W. and L. P. Jennings "A," 1,209 feet north and 2,700 feet west of the southeast corner of the A. S. Lipscomb Survey, No. 94. Same company's No. 5 G. W.

Treat CUT OIL with TRET-O-LITE

the SIMPLEST MOST ECONOMICAL MOST RAPID METHOD
The Tret-O-litE Process is a fundamentally simple and direct method of correcting the chemical condition present in "cut oil." Treatment with Tret-O-litE causes the petroleum and water to separate *quickly* and *completely*. Cost of treatment is exceedingly low. Let us send our nearest field expert to see you.
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The OIL and GAS JOURNAL
Tulsa, Okla.

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Two gasoline absorption plants complete including engines and compressors, pumps, heat exchangers, stills, boilers, condenser coils, buildings and tankage.

Capacity of one plant 5,000,000 cubic feet daily, the other 3,000,000 feet daily. The plants are located within fifty miles of Wichita and are to be sold either as complete units or part thereof, but preferably as complete units.

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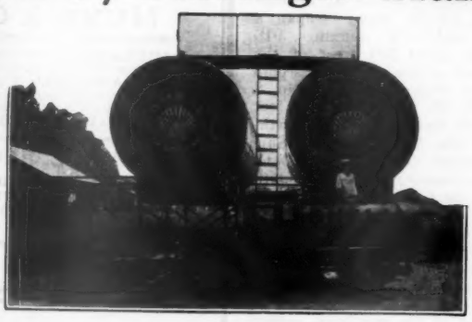
The Oil and Gas Journal

Leader Truck Tank Hit by Passenger Train



Goes Right Back in Service on Another Truck

Just another illustration of the rugged strength of Leader Truck Tanks. Following is a letter from the owners, the Tradewater Oil Company at Marion, Kentucky.

Marion, Ky., Dec. 1, 1928

Leader Iron Works,
Decatur, Illinois.

Gentlemen:—I. C. Passenger Train hit our International Truck and Leader Tank Outfit last Friday. Knocked it completely around and turned it over on its side. Damaged truck to the extent of several hundred dollars, but did not hurt Tank at all. We mounted Tank on another truck and did not miss making a delivery on schedule.

Yours truly,
TRADEWATER OIL COMPANY,
John G. Bellamy.

Write for Bulletin describing these splendid Leader Truck Tank Units.

LEADER IRON WORKS

2130 NORTH JASPER STREET DECATUR, ILLINOIS
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1903 1929

26 YEARS OF GOOD MALLEABLE CASTINGS

"CERTIFIED" MALLEABLE CASTINGS

GENERAL MACHINERY CASTINGS A SPECIALTY

IOWA MALLEABLE IRON CO.
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Manufacturers

"Electric Steel Castings—Electrically Annealed," "Certified Malleable Iron Castings," "Meehanite Metal Castings," Gray Iron Castings, and Special Analysis Castings.

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ESTIMATES OF OIL RESERVES

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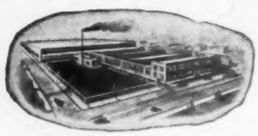

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Stills, Refinery equipment of every kind.
Steel Oil Storage Tanks, Condensers,
Fabricated and Erected

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General Offices—Pittsburgh, Pa.

and L. P. Jennings "A," 868 feet north and 3,500 feet west of the southeast corner of the A. S. Lipscomb Survey, No. 94. Same company's No. 1 G. W. and L. P. Jennings "B," 1,302 feet south and 3,800 feet west of the northeast corner of the A. S. Lipscomb Survey, No. 94. Same company's No. 2 G. W. and L. P. Jennings "B," 918 feet south and 3,800 feet west of the northeast corner of the A. S. Lipscomb Survey, No. 94. Same company's No. 3 G. W. and L. P. Jennings "B," 534 feet south and 3,800 feet west of the northeast corner of the A. S. Lipscomb Survey, No. 94. Same company's No. 8 G. W. and L. P. Jennings "B," 1,302 feet south and 4,200 feet west of the northeast corner of the A. S. Lipscomb Survey, No. 94. Same company's No. 1 G. W. and L. P. Jennings "C," 1,209 feet north and 3,800 feet west of the southeast corner of the A. S. Lipscomb Survey, No. 94. Same company's No. 2 G. W. and L. P. Jennings "C," 868 feet north and 3,800 feet west of the southeast corner of the A. S. Lipscomb Survey, No. 94. Same company's No. 4 G. W. and L. P. Jennings "C," 200 feet north and 3,800 feet west of the southeast corner of the A. S. Lipscomb Survey, No. 94. Same company's No. 5 G. W. and L. P. Jennings "C," 200 feet north and 4,200 feet west of the southeast corner of the A. S. Lipscomb Survey, No. 94. Same company's No. 7 G. W. and L. P. Jennings, "C," 868 feet north and 4,200 feet west of the southeast corner of the A. S. Lipscomb Survey, No. 94. Same company's No. 1 G. W. Rice, 1,302 feet south and 5,300 feet west of the northeast corner of the A. S. Lipscomb Survey, No. 94. Derby Oil Co.'s No. 1 G. W. and L. P. Jennings, 150 feet south and 3,500 feet west of the northeast corner of the A. S. Lipscomb Survey, No. 94. Same company's No. 2 G. W. and L. P. Jennings, 534 feet south and 3,500 feet west of the northeast corner of the A. S. Lipscomb Survey, No. 94. Same company's No. 3 G. W. and L. P. Jennings, 918 feet south and 3,500 feet west of the northeast corner of the A. S. Lipscomb Survey, No. 94. Same company's No. 4 G. W. and L. P. Jennings, 1,302 feet south and 3,500 feet west of the northeast corner of the A. S. Lipscomb Survey, No. 94. Same company's No. 5 G. W. and L. P. Jennings, 1,302 feet south and 3,100 feet west of the northeast corner of the A. S. Lipscomb Survey, No. 94. Same company's No. 6 G. W. and L. P. Jennings, 1,302 feet south and 2,700 feet west of the northeast corner of the A. S. Lipscomb Survey, No. 94. Same company's No. 7 G. W. and L. P. Jennings, 918 feet south and 2,700 feet west of the northeast corner of the A. S. Lipscomb Survey, No. 94. Same company's No. 8 G. W. and L. P. Jennings, 918 feet south and 3,100 feet west of the northeast corner of the A. S. Lipscomb Survey, No. 94. Same company's No. 9 G. W. and L. P. Jennings, 534 feet south and 2,700 feet west of the northeast corner of the A. S. Lipscomb Survey, No. 94. The Texas Company's No. 1 T. M. Hays, 200 feet south and 3,800 feet west of the northeast corner of the Bonds & Sanders Survey, No. 93. Same company's No. 2 T. M. Hays, 200 feet south and 4,200 feet west of the northeast corner of the Bonds & Sanders Survey, No. 93. Same company's No. 3 T. M. Hays, 200 feet south and 3,500 feet west of the northeast corner of the Bonds & Sanders Survey, No. 93. Same company's No. 4 T. M. Hays, 200 feet south and 3,100 feet west of the northeast corner of the Bonds & Sanders Survey, No. 93.

In Cooke County: Pure Oil Co.'s No. 2 J. C. Embry, 150 feet north and 470 feet west of the southeast corner of their 80-acre lease out of the T. J. Moss Survey, A-736. Thornton-Taubert Oil Co.'s No. 2 A. J. Dennis, 1,650 feet south and 268 feet west of the northwest corner of the J. L. Stephens Survey, A-1,001, and located in the H. Wilkerson Survey, A-1,173.

In Pecos County: George Anderson's No. 1 University Land, 1,170 feet southwest of the northeast line and 1,170 feet southeast of the northwest line of Section 11, Block 17, University Land.

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Long or short term Lease

Thousands of cars—various capacities—all modern and conditioned. Rental periods of one trip to ten years. Write for details.

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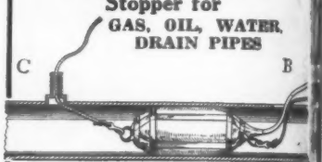

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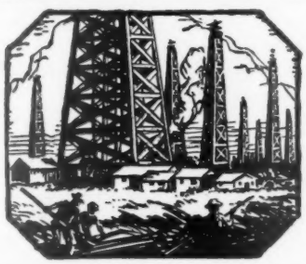

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All the pipe for this section of an Arkansas line had to be carried through woods into place by man-power. ODEE double lengths cut this labor in half besides reducing the welding 50%. There's real economy for you!

ODEE pipe is guaranteed. The ends are cut square and beveled for perfect welds—obtainable in double lengths when desired.

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Savings such as these show why so many concerns in the oil industry have standardized on Oakite materials and methods for every sort of cleaning job. And the amount of hand scrubbing eliminated — the time saved — brings down costs still further.

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Industrial Cleaning Materials and Methods

Oklahoma-Kansas and Eastern Pipe Line Report

OKLAHOMA-KANSAS

Pipe Line Statement for November

Runs

Company	Month bbls.	Dly. av. bbls.
*Prairie P. L. Co.	4,500,000	150,000
Gulf P. L. Co.	1,471,222	49,041
Texas P. L. Co.	884,473	29,482
Magnolia P. L. Co.	2,120,315	70,677
Empire P. L. Co.	1,236,637	41,221
Cosden P. L. Co.	879,810	29,327
Sinclair P. L. Co.	3,210,000	107,000
Oklahoma P. L. Co.	3,130,325	104,344
Other lines	7,620,000	254,000
Total November	25,052,782	835,092
Total October	26,499,940	854,835
Difference	1,447,158	19,743

Shipments

†Prairie P. L. Co.	5,461,567	182,052
Gulf P. L. Co.	1,594,937	53,165
Texas P. L. Co.	1,111,436	37,048
Magnolia Pet. Co.	1,995,306	66,510
Empire P. L. Co.	1,035,169	34,506
Cosden P. L. Co.	874,967	29,162
†Sinclair P. L. Co.	3,211,711	107,057
Oklahoma P. L. Co.	3,174,464	105,815
Other lines	7,350,000	245,000
Total November	25,809,577	860,315
Total October	27,333,903	881,735
Difference	1,524,326	21,420

Stocks

	Bbls.
Prairie O. & G. Co.	31,837,000
Prairie P. L. Co.	2,750,000
Gulf P. L. and Gypsy Oil Cos.	10,112,313
The Texas Company	6,762,931
Magnolia Pet. Co.	9,265,632
Empire P. L. Co.	3,875,959
Mid-Continent Pet. Corp.	3,593,914
Sinclair Crude Oil Pur. Co.	20,623,000
Carter Oil Co.	12,128,602
Oklahoma P. L. Co.	3,875,959
Other lines	11,700,000
Total November	116,225,310
Total October	115,173,801
Difference	1,051,509

*Estimated. †Prairie P. L. and Sinclair P. L. shipments include Texas crude oil.

Note—Stocks do not include approximately 8,200,000 bbls. of crude oil held in storage on private tank farms and leases and approximately 210,000 bbls. of Texas Panhandle crude oil in storage in Oklahoma.

EASTERN PIPE LINE REPORT

Runs From Wells

In the following table will be found the regular receipts from wells by various pipe lines in New York, Pennsylvania, West Virginia, Ohio, Kentucky and Indiana for November and December:

	Nov.,'28	Dec.,'28
Nat. Transit	149,632.58	145,961.90
S. W. Pa. P. L.	88,351.54	90,632.07
Eureka P. L.	340,150.08	334,400.38
Buckeye P. L. (Macksburg)	324,323.38	321,746.10
Buckeye P. L. (Cleveland)	9,969.20	11,670.01
Buckeye P. L. (Lima, etc.)	95,741.92	102,544.02
Indiana P. L.	5,045.26	5,869.25
Cumberland P. L.	200,252.82	198,838.68
N. Y. Transit	26,096.56	26,551.67
Tidewater P. L.	213,822.88	222,437.71
Pure Oil	63,222.62	58,931.42
Emery P. L.	59,915.74	62,342.83
Paragon Dev.	21,546.52	21,324.31
Stoll Oil Ref.	8,888.14	9,023.98
Total	1,606,958.54	1,612,774.33
Daily average	53,565.15	52,024.98

Note—Indian Refining Co. also reported other receipts of 247,724.51 bbls. Paragon Refining Co. had other receipts of 194,077.16 bbls. Paragon Development had other receipts of 482.14 bbls.

Petroleum Deliveries

The following tables exhibit the shipments or regular deliveries of various pipe lines in New York, Pennsylvania, West Virginia, Ohio and Kentucky for November and December:

	Nov.,'28	Dec.,'28
Nat. Transit	581,552.73	565,441.11
S. W. Pa. P. L.	453,348.05	472,797.78
Eureka P. L.	233,597.31	218,228.06
Buckeye P. L. (Macksburg)	104,175.67	163,839.57
Buckeye P. L. (Cleveland)	1,942.41	2,189.40
Buckeye P. L. (Lima, etc.)	1,432,776.49	1,389,409.84
Indiana P. L.	1,380,185.20	1,426,008.91
Cumberland P. L.	182,624.70	215,190.79
Southern P. L.	.....	39,859.78
N. Y. Transit	232,023.71	189,477.21
Northern P. L.	240,489.16	173,728.49
Tidewater P. L.	181,613.37	184,601.11
Pure Oil	63,566.49	62,743.21
Emery P. L.	59,668.23	60,747.88
Indian Ref.	159,377.75	195,558.59
Paragon Dev.	.....	21,911.78
Total	5,306,941.28	5,381,735.51
Daily average	176,898.04	173,572.05

Indian Refining Co. reported other deliveries of 339,546.09 bbls.

Gross Stocks

The gross stocks held by various pipe lines in the oil-producing sections of New York, Pennsylvania, West Virginia, Ohio, Indiana and Kentucky at the close of November and December:

	Nov.,'28	Dec.,'28
Nat. Transit	937,788.09	863,001.46
S. W. Pa. P. L.	548,202.29	429,283.61
Eureka P. L.	1,119,157.14	1,166,151.69
Buckeye P. L. (Macksburg)	565,202.83	558,828.02
Buckeye P. L. (Cleveland)	29,807.45	33,233.02
Buckeye P. L. (Lima, etc.)	2,745,636.88	2,326,759.46
Indiana P. L.	542,471.12	503,036.50
Cumberland P. L.	520,634.29	504,540.79
Southern P. L.	374,083.37	380,167.89
N. Y. Transit	403,009.35	307,858.74
Northern P. L.	383,904.17	367,722.48
Pure Oil	14,711.72	11,641.89
Emery P. L.	12,163.12	13,422.06
Paragon Ref.	22,875.49	21,092.45
Indian Ref.	142,492.29	46,060.23
Paragon Dev.	6,413.78	6,754.88
Total	8,366,553.38	7,539,555.17
Decrease	863,155.78	826,998.21

Grades of Oil

The following table shows the amount of the different grades of oil held by the eastern pipe lines at the close of November and December, showing the gross stocks of the above fields:

	Nov.,'28	Dec.,'28
Pennsylvania	3,045,588.44	2,927,780.85
Lima	793,424.06	734,379.46
Kentucky	767,197.74	722,193.76
Mid-Continent	3,605,501.13	3,118,706.55
Illinois	154,842.01	36,469.55
Total	8,366,553.38	7,539,555.17

Daily Average Runs

The following table shows the daily average runs of the Pennsylvania, Lima and Kentucky oil fields for the past four years:

	1925	1926	1927	1928
January	56,831	55,630	56,209	52,904
February	60,606	60,394	61,298	57,002
March	60,575	61,644	63,247	57,485
April	63,062	63,019	60,337	56,812
May	59,217	60,580	60,284	62,067
June	61,270	61,131	62,757	58,220
July	62,629	63,206	58,674	57,144
August	59,686	61,815	60,870	57,745
September	62,510	64,639	60,285	53,487
October	145,388	161,132	147,036	58,100
November	59,350	61,774	57,275	53,565
December	57,974	58,755	53,089	52,025

Daily Average Shipments

The following table gives daily average shipments from the Pennsylvania, Lima and other fields for the past four years:

	1925	1926	1927	1928
January	157,889	156,056	141,237	146,465
February	160,863	159,488	138,534	167,368
March	154,591	150,239	133,777	158,883
April	151,429	152,371	140,227	172,935
May	146,995	160,998	144,594	180,559
June	149,467	160,257	149,772	188,034
July	161,338	160,045	151,850	189,470
August	161,730	151,929	188,653	192,853
September	156,719	158,915	144,213	194,138
October	145,388	161,132	147,036	176,000
November	143,582	152,608	150,975	176,898
December	150,162	136,428	144,504	173,572

Gross Stocks

In the following table will be found the gross stocks of the various lines of the Pennsylvania, Lima and Kentucky oil fields including oil received from other lines at the close of each month for the past three years:

	1926	1927	1928
January	9,859,170	9,718,008	12,276,[illegible]
February	9,579,354	10,119,162	12,186,[illegible]
March	9,438,292	10,794,044	12,239,[illegible]
April	9,805,851	11,112,295	11,740,[illegible]
May	9,531,757	11,359,381	11,602,[illegible]
June	9,585,904	11,493,673	11,287,[illegible]
July	9,734,687	11,458,128	10,819,[illegible]
August	9,058,947	11,989,115	10,236,[illegible]
Septemebr	9,436,732	12,212,716	9,666,[illegible]
October	9,269,806	12,047,661	9,229,[illegible]
November	9,257,067	11,939,740	8,366,[illegible]
December	9,454,512	12,340,297	7,539,[illegible]

Franklin Pipe Line Co.

The following table exhibits the condition of the Franklin Pipe Line at the close of business for the months named and the gross counted in the stocks and averages reported above:

	Runs	Shipments	Stocks
1927—			
November	2,746.50	2,220.53	31,472,[illegible]
December	2,779.86	1,803.69	22,358,[illegible]
1928—			
January	1,886.06	2,424.79	21,819,[illegible]
February	2,460.14	3,109.34	21,170,[illegible]
March	2,578.86	3,540.32	20,209,[illegible]
June	3,153.08	2,779.02	17,992,[illegible]
July	3,902.50	3,628.02	17,197,[illegible]
August	2,874.11	2,350.13	17,721,[illegible]
September	2,820.31	5,255.42	15,285,[illegible]
October	1,289.93	538.89	17,551,[illegible]
November	2,663.53	788.47	19,426,[illegible]

The Illinois Field

The following table gives the report of the Illinois Pipe Line Co. in Illinois:

Gross stocks, January 1	4,288,862,[illegible]
Runs from wells	558,261,[illegible]
Other receipts	403,608,[illegible]
Regular deliveries	463,071,[illegible]
Other deliveries	364,443,[illegible]

The amount of Illinois oil run by the Tidewater Pipe Co. in December was 2[illegible] 771.14 bbls. Deliveries were 26,446.01 bbls. Adding these figures to those of the Illinois Pipe Line Co. makes the runs and deliveries as follows:

	Runs	Deliveries
1927—		
November	606,621.14	415,185,[illegible]
December	577,321.25	397,176,[illegible]
1928—		
January	561,759.57	434,147,[illegible]
February	573,619.73	456,217,[illegible]
March	725,250.82	520,595,[illegible]
April	526,013.13	448,282,[illegible]
May	632,968.04	582,980,[illegible]
June	608,552.49	525,967,[illegible]
July	612,286.49	565,678,[illegible]
August	639,074.85	671,864,[illegible]
September	570,307.91	737,291,[illegible]
October	626,147.64	626,296,[illegible]
November	576,332.88	702,589,[illegible]

Tidewater Pipe Co., Ltd., also delivered in December 85,055.56 bbls. Oklahoma oil.

AVERAGE DAILY RECEIPTS OF CALIFORNIA OIL AT ATLANTIC AND GULF COAST PORTS

Average bbls. per day—	ATLANTIC PORTS: Baltimore	Boston	New York	Philadelphia	Others	Total	GULF COAST PORTS: Galveston	New Orleans Baton Rouge	Port Arthur Sabine Pass	Tampa	Total	Total all ports
June	11,800	.....	23,367	19,700	9,000	63,567	.....	.....	.....	.....	.....	63,567
July	19,807	2,903	8,774	20,419	2,452	54,355	.....	.....	.....	.....	.....	54,355
August	18,161	3,613	27,774	17,677	2,419	69,645	.....	.....	.....	.....	806	70,451
September	11,100	.....	18,967	38,200	6,700	74,967	.....	.....	.....	.....	.....	74,967
October	17,323	.....	11,807	6,483	.....	.....	.....	.....	.....	.....	.....	35,613
November	21,333	5,200	25,400	18,200	7,100	77,233	.....	.....	.....	.....	1,000	78,233

AVERAGE DAILY IMPORTS OF PETROLEUM AT PRINCIPAL UNITED STATES PORTS

Average bbls. per day—	ATLANTIC PORTS: Baltimore	Boston	New York	Philadelphia	Others	Total	GULF COAST PORTS: Galveston	New Orleans Baton Rouge	Port Arthur Sabine Pass	Tampa	Total	Total all ports
June	24,900	12,233	119,367	41,667	19,300	217,267	1,333	15,567	2,167	.....	19,567	237,[illegible]
July	23,484	14,548	111,903	37,678	21,452	209,065	9,355	25,000	.....	774	35,129	244,[illegible]
August	25,290	16,323	123,226	21,613	7,194	193,645	.....	38,577	.....	613	39,290	232,[illegible]
September	22,933	19,100	110,467	30,700	14,333	197,533	6,367	41,300	6,333	1,667	55,667	253,[illegible]
October	20,161	16,839	128,452	37,710	7,098	200,255	.....	32,226	3,065	1,612	36,903	237,[illegible]
November	18,400	16,033	133,700	30,267	8,433	206,833	1,333	37,167	4,633	.....	43,133	249,[illegible]

GROSS PRODUCTION IN UNITED STATES FOR 12 MONTHS (Revised)

(In barrels of 42 gallons)

	Month	California	Oklahoma	Texas	Kansas	Arkansas	Louisiana	Rocky Mts.	Eastern	Total
January:	Month	19,028,228	20,878,320	20,060,311	3,319,325	2,791,922	1,807,061	2,429,375	3,134,000	73,548,[illegible]
	Daily average	613,814	676,720	647,107	107,075	90,061	58,292	78,367	101,097	2,373,[illegible]
February:	Month	18,038,459	19,294,426	19,678,396	3,079,887	2,571,575	1,734,207	2,230,887	3,166,000	69,793,[illegible]
	Daily average	622,016	665,324	678,565	106,203	88,675	59,800	76,927	109,172	2,406,[illegible]
March:	Month	19,118,324	20,162,524	21,542,865	3,379,031	2,687,948	1,866,106	2,401,911	3,522,000	74,680,[illegible]
	Daily average	616,720	650,404	694,931	109,001	86,708	60,197	77,481	113,613	2,408,[illegible]
April:	Month	18,280,729	19,096,320	21,876,913	3,412,260	2,472,600	1,912,187	2,370,810	3,231,000	72,652,[illegible]
	Daily average	609,357	636,564	729,230	113,742	82,420	63,740	79,027	107,700	2,421,[illegible]
May:	Month	19,331,856	19,443,355	21,220,046	3,367,809	2,843,847	1,926,026	2,525,043	3,619,000	74,276,[illegible]
	Daily average	623,609	627,205	684,518	108,639	91,737	62,130	81,447	116,742	2,396,[illegible]
June:	Month	19,164,244	18,482,981	19,877,936	3,202,050	3,075,911	2,074,422	2,425,470	3,401,000	71,704,[illegible]
	Daily average	638,808	616,099	662,598	106,735	102,530	69,147	80,849	113,367	2,390,[illegible]
July:	Month	19,754,458	18,809,188	22,055,737	3,171,548	2,792,139	2,238,090	2,492,586	3,487,000	74,800,[illegible]
	Daily average	637,241	606,748	711,475	102,308	90,069	72,131	80,406	112,484	2,412,[illegible]
August:	Month	19,444,899	20,840,804	22,339,131	3,147,058	2,711,787	1,989,264	2,561,840	3,556,000	78,490,[illegible]
	Daily average	627,255	672,284	720,448	101,518	87,477	64,170	82,640	114,709	2,470,[illegible]
September:	Month	18,908,169	22,456,860	21,554,269	3,047,250	2,540,070	1,830,225	2,432,430	3,229,000	76,998,[illegible]
	Daily average	630,272	748,562	718,207	101,575	84,669	61,007	81,047	104,300	2,533,[illegible]
October:	Month	19,430,992	23,431,071	22,176,853	3,058,460	2,652,484	1,836,221	2,571,822	3,612,000	78,769,[illegible]
	Daily average	626,806	755,841	715,376	98,660	85,564	59,233	82,962	116,516	2,540,[illegible]
November:	Month	19,907,526	22,078,680	20,791,798	2,977,800	2,476,080	1,801,914	2,388,870	3,348,000	75,770,[illegible]
	Daily average	663,584	735,956	693,059	99,260	82,536	60,064	79,629	111,600	2,525,[illegible]
December:	Month	21,574,703	22,425,722	22,180,102	2,988,400	2,521,571	1,846,841	2,289,040	3,581,000	79,407,[illegible]
	Daily average	695,958	723,410	715,487	96,400	81,341	59,576	73,840	115,516	2,561,[illegible]
	Total 12 months	231,982,597	247,500,851	255,354,357	38,150,878	32,137,934	22,862,564	29,120,084	40,886,000	897,995,[illegible]
	Daily average	633,832	676,232	697,690	104,237	87,809	62,466	79,563	111,710	2,453,[illegible]

The Oil and Gas Journal's Table for 1928, G

	January					February				March			
GASOLINE AND NAPHTHA—	3	10	17	24	31	7	14	21	28	6	13	20	27
Oklahoma (Group 3):													
50-52 450 endpoint	.05½	.05½	.05½	.05½	.05½	.05⅜	.05⅜	.05½	.05½	.05⅝	.05¾	.05¾	.05¾
56-58 450 endpoint	.05½	.05½	.05½	.05½	.05½	.05⅜	.05½	.05½	.05½	.05⅝	.05¾	.05¾	.05¾
*58-60 437 endpoint U. S. Motor)	.05¾	.05⅝	.05⅝	.05⅝	.05¾	.05¾	.061042	.06211	.06168	.06178	.06268	.06417	.06490
*60-62 400 endpoint	.06⅜	.06¼	.06¼	.06¼	.06¼	.06⅜	.065	.06690	.06705	.06674	.06875	.06900	.06807
*64-66 375 endpoint	.06⅞	.06¾	.06¾	.06¾	.06¾	.06¾	.070	.07250	.07170	.07125	.07250	.07125	.07214
68-70 360 endpoint	.07⅛	.07	.07	.07	.07	.07⅛	.07⅛	.07¼	.07¼	.07¼	.07¼	.07¼	.07¼
North Texas:													
58-60 437 endpoint (U. S. Motor)	.05¾	.05⅝	.05⅝	.05⅝	.05¾	.05⅞	.06	.06	.06	.06	.06⅛	.06⅛	.06⅛
64-66 375 endpoint	.06⅞	.06¾	.06¾	.06¾	.06¾	.06¾	.06¾	.06¾	.06¾	.06¾	.06¾	.06¾	.06¾
64-66 390 endpoint	.06½	.06½	.06½	.06½	.06½	.06½	.06⅝	.06⅝	.06⅝	.06½	.06⅝	.06⅝	.06⅝
North Louisiana:													
58-60 437 endpoint (U. S. Motor)	.06½	.06½	.06	.06¼	.06¼	.06¼	.06¼	.06⅜	.06⅜	.06⅜	.06½	.06½	.06¾
Pennsylvania:													
52 Naphtha	.07¾	.07½	.07½	.07½	.07½	.07½	.07½	.07½	.07½	.07½	.07¾	.07¾	.07¾
58 Gasoline	.07⅞	.07¾	.07¾	.07¾	.07¾	.07¾	.07½	.07½	.07¾	.07¾	.08	.08	.08¼
60 Gasoline	.08½	.08	.08½	.08½	.08½	.08½	.08	.08	.08	.08	.08½	.08½	.08½
64 Gasoline	.09	.09	.09	.09	.09	.09	.09	.09	.09	.09	.09	.09¼	.09¼
California:													
58-60 437 endpoint (U. S. Motor) domestic	.09	.08½	.08	.07	.07	.07	.07	.08	.08	.08	.08	.08½	.09
NATURAL GASOLINE—													
Oklahoma (Group 3):													
Grade A, 72-79.9, 375 endpoint, rec. 90%	.05¼	.05¼	.05⅜	.05½	.05⅝	.05¼	.05½	.05½	.05½	.05	.05	.04¾	.04¼
Grade AA, 80-87.9, 375 endpoint, rec. 90%	.04⅞	.04⅞	.05⅛	.05⅜	.05½	.05¼	.05⅜	.05½	.05⅜	.05	.04⅞	.04⅝	.04¼
Grade B, 76-83.9, 375 endpoint, rec. 85%	.04	.04¼	.04	.04⅜	.04⅜	.04⅜	.04¾	.04⅝	.04½	.04⅛	.04	.04	.04
Grade BB, 84-92, 375 endpoint, rec. 85%	.04	.04	.04	.04¼	.04½	.04⅜	.04¾	.04½	.04¼	.04	.04	.03¾	.03¾
Grade C, 80-90, 375 endpoint, rec. 78%	.03½	.03⅝	.03⅝	.03⅞	.04¼	.04½	.04¼	.04¼	.04⅛	.03⅞	.03¾	.03½	.03¼
North Texas:													
Grade A, 72-79.9, 375 endpoint, rec. 90%	.05¼	.05¼	.05⅜	.05½	.05⅝	.05¼	.05½	.05½	.05½	.05	.05	.04⅞	.04½
Grade B, 76-83.9, 375 endpoint, rec. 85%	.04	.04⅛	.04	.04⅞	.04¾	.04⅝	.04¾	.04⅝	.04¼	.04⅛	.04	.04	.04
Grade C, 80-90, 375 endpoint, rec. 78%	.03½	.03⅝	.03⅝	.03⅞	.04¼	.04½	.04½	.04¼	.04¼	.04	.03¾	.03⅝	.03¼
California:													
75-85, 375-390 endpoint	.08½	.08½	.07½	.07½	.07½	.07½	.07⅛	.07	.07	.07	.07½	.07½	.07¾
BURNING OILS—													
Oklahoma (Group 3):													
41-43 water white Kerosene	.04¼	.04¼	.04¼	.04¼	.04⅛	.04¼	.04⅛	.04⅛	.04⅛	.04¼	.04¼	.04¼	.04⅜
42-44 water white Kerosene	.04¾	.04¾	.04¾	.04¾	.04⅞	.04⅞	.04⅝	.04⅝	.04⅝	.04¾	.04¾	.04¾	.04¾
North Texas:													
41-43 water white Kerosene	.04⅛	.04⅛	.04⅛	.04⅛	.04⅛	.04¼	.04⅛	.04¼	.04¼	.04¼	.04¼	.04¼	.04¼
Pennsylvania:													
43 Kerosene prime white	.06⅛	.06	.06	.06	.06	.06	.06	.06	.05¾	.05¾	.05¾	.05¾	.05¾
45 Kerosene water white	.06¼	.06¼	.06¼	.06¼	.06¼	.06¼	.06¼	.06¼	.06	.06	.06	.06	.06
California:													
38-40 water white Kerosene (high-burning test)	.05½	.05½	.05½	.05½	.05½	.05½	.05½	.05½	.05½	.05½	.05½	.05½	.05½
Engine Distillate, 43-44 445 endpoint	.07	.07	.06½	.06½	.06½	.06½	.06½	.06½	.06½	.06½	.06½	.07	.07
Engine Distillate, 42-44 480 endpoint	.06¾	.06¾	.06¼	.06¼	.06¼	.06¼	.06¼	.06¼	.06¼	.06¼	.06¼	.06½	.06½
FUEL OILS—													
Oklahoma (Group 3):													
Below 18 Fuel Oil, bbl.	.70	.70	.70	.70	.70	.70	.75	.75	.75	.75	.77½	.77½	.77½
24-26 Fuel Oil, bbl.	.80	.80	.80	.80	.80	.80	.80	.85	.85	.85	.85	.85	.85
32-36 Gas Oil (dark)	.02¼	.02¼	.02⅜	.02⅜	.02⅜	.02⅜	.02⅜	.02½	.02½	.02½	.02½	.02½	.02½
38-40 Distillate	.03	.03	.03	.03	.03	.03	.03	.03	.03	.03	.03	.03	.03
North Texas:													
24-26 Fuel Oil, per bbl.	.75	.75	.75	.75	.75	.75	.75	.77½	.80	.75	.75	.75	.75
32-36 Gas Oil (straw)	.02¼	.02¼	.02¼	.02¼	.02¼	.02¼	.02¼	.02⅜	.02⅜	.02⅜	.02⅜	.02⅜	.02⅜
38-40 Straw Distillate	.03	.03	.03	.03	.03	.03	.03	.03	.03	.03	.03	.03	.03
North Louisiana:													
18-20 Fuel Oil, per bbl.	1.00	1.00	.97½	.97½	.97½	.97½	.97½	.97½	.97½	.97½	.97½	.97½	97½
Gulf Coast:													
Bunker "C" Fuel, per bbl.	1.25	1.25	1.25	1.25	1.25	1.25	1.25	1.25	1.25	1.25	1.20	1.15	1.15
Gas Oil	.03⅞	.04¼	.04¼	.04¼	.04¼	.04¼	.04¼	.04¼	.04¼	.04¼	.04¼	.04¼	.04¼
Pennsylvania:													
30-34 Fuel Oil	.04¼	.04⅜	.04⅜	.04⅜	.04⅜	.04⅜	.04⅜	.04¾	.04¾	.04¾	.04¾	.04¾	.04⅞
36-40 Fuel Oil	.04⅜	.04½	.04½	.04½	.04⅞	.04⅞	.04⅞	.05	.05	.05	.05	.05	.05
California:													
27-32 Distillate	.02¼	.02¼	.02½	.02½	.02½	.02½	.02½	.02½	.02½	.02½	.02½	.02½	.02½
15-20 Fuel Oil (tidewater) Bunker	1.00	1.00	1.00	1.00	1.00	1.00	1.00	.85	.85	.85	.85	.85	.85
27 plus Diesel, per bbl.	1.15	1.15	1.15	1.15	1.15	1.15	1.15	1.15	1.15	1.15	1.15	1.15	1.15
LUBRICATING OILS AND WAX—													
Oklahoma (Group 3)—													
100 vis., 3 color, 20-25 cold test	.06	.06	.06	.06	.06	.06	.06	.06	.06	.06	.06	.06	.06
180 vis., 3 color, 23-28 cold test	.09⅜	.09⅜	.09⅜	.09⅜	.09⅜	.09⅜	.09⅜	.09⅜	.09⅜	.09⅜	.09⅜	.09⅜	.09⅜
200 vis., 3 color, 23-28 cold test	.09½	.09½	.09½	.09½	.09½	.09½	.09½	.09½	.09½	.09½	.09½	.09½	.09½
180 vis., 5 color, 23-28 cold test	.09⅛	.09⅛	.09⅛	.09⅛	.09⅛	.09⅛	.09⅛	.09⅛	.09⅛	.09⅛	.09⅛	.09⅛	.09⅛
200 vis., 5 color, 23-28 cold test	.09¼	.09¼	.09¼	.09¼	.09¼	.09¼	.09¼	.09¼	.09¼	.09¼	.09¼	.09¼	.09¼
240 vis., 5 color, 25-30 cold test	.12¼	.12¼	.12¼	.12¼	.12¼	.12¼	.12¼	.12¼	.12¼	.12¼	.12¼	12¼	.12¼
150-160 vis. @ 210 Bright Stock	.24	.23	.23	.23	.23	.23	.23	.23	.23	.23	.22	.22	.22
600 steam refined, light green	.08	.08	.08	.08	.08	.08	.08	.08	.08	.08	.08	.08	.08
124-126 White Crude Scale Wax, lb.	.02½	.02⅝	.02⅝	.02⅝	.02⅝	.02¾	.02¾	.02¾	.03	.03	.03	.03⅛	.03¼
Pennsylvania:													
600 Pennsylvania flash	.15	.15	.15	.15	.15	.15	.15	.15	.15	.15	.15	.14	.14
Pennsylvania Bright Stock	.28½	.28½	.28½	.28½	.27½	.27½	.27½	.27	.27	.27	.27	.26½	.26½
Gulf Coast:													
200 vis., 3 color, pale	.08¾	.09	.09	.09	.09	.09	.09	.09	.09	.09	.07½	.07½	.07½
200 vis., 5-6 color, red	.07½	.07½	.07½	.07½	.07½	.07½	.07½	.07½	.07½	.07½	.07½	.07½	.07½
California:													
200 vis., 2½-3 color	.10	.10	.10	.10	.10	.10	.10	.10	.10	.10	.10	.10	.10
200 vis., 4½-5 color, red	.08½	.08½	.08½	.08½	.08½	.08½	.08½	.08½	.08½	.08½	.08½	.08½	.08½
NEW YORK DOMESTIC MARKET—													
58-60 437 U. S. Motor Gasoline	.08¼	.08¼	.08¼	.08¼	.08¼	.08¼	.08¼	.08¼	.08¼	.08½	.08½	.08¾	.08¾
41-43 water white Kerosene	.07½	.07½	.07½	.07½	.07½	.07½	.07½	.07½	.07½	.07½	.07½	.07½	.07½
Gas Oil, 32-36 gravity	.05½	.05½	.05½	.05½	.05½	.05½	.05½	.05¼	.05¼	.05¼	.05¼	.05¼	.05½
†Diesel Fuel Oil, 28-30, bbl.	2.10	2.10	2.10	2.10	2.10	2.10	2.10	2.00	2.00	2.00	2.00	2.00	2.00
*Bunker "C" Fuel Oil, 14-16, bbl.	1.35	1.35	1.35	1.35	1.35	1.35	1.35	1.35	1.35	1.35	1.35	1.35	1.35
28 pale Paraffin Oil	.07	.07	.07	.07	.07	.07	.07	.07	.07	.07	.07	.07	.07
250 red Paraffin Oil	.10½	.10½	.10½	.10½	.10½	.10½	.10½	.10½	.10½	.10½	.10½	.10½	.10½
120-122 a.m.p. Wax, lb.	.03⅞	.03⅞	.03⅞	.03⅞	.03⅞	.04	.04	.04	.04	.04	.04	.04	.04
Amber Petrolaum	.03⅜	.03⅜	.03⅜	.03⅜	.03⅜	.03⅜	.03⅜	.03⅜	.03⅜	.03⅜	.03⅜	.03⅜	.03⅜
NEW YORK (BAYONNE) EXPORT MARKET—													
58-60 437 U. S. Motor Gasoline, cases	.2390	.2390	.2390	.2365	.2365	.2365	.2365	.2365	.2365	.2365	.2390	.2465	.2465
Kerosene, standard white, cases	.1715	.1715	.1715	.1690	.1690	.1690	.1690	.1690	.1690	.1690	.1690	.1690	.1690
Kerosene, water white, cases	.1815	.1815	.1815	.1790	.1790	.1790	.1790	.1790	.1790	.1790	.1790	.1790	.1790
600 steam refined, Cylinder Stock, bbls.	.17	.17	.17	.17	.17	.17	.17	.17	.17	.17	.17	.17	.17
Light 140-150 Bright Stock	.40	.40	.40	.40	.40	.40	.40	.40	.40	.40	.40	.40	.40
Dark 140-150 Bright Stock	.38	.38	.38	.38	.38	.38	.38	.38	.38	.38	.38	.38	.38
LOS ANGELES EXPORT PRICES—													
Kerosene, water white	.04¾	.04½	.04½	.04½	.04½	.04½	.04½	.04¾	.04¾	.04¾	.04¾	.05	.05
Gasoline, 53-55 437 endpoint	.06	.06	.06	.06	.06	.06	.06	.06⅛	.06¼	.06¼	.06¼	.06¼	.06¼

*Starting on February 14, weighted average prices as reported by representative refiners. Sales to jobbers only. †No sales reported.

*Lighterage, 5c a barrel extra. †Lighterage, 6.5c a barrel extra.

XUM

3, Giving Low Weekly Quotations of Represent

PRICES GIVEN IN CENTS PER GALLON UNLESS OTHERWISE NOTED

		April				May					June				
	27	3	10	17	24	1	8	15	22	29	5	12	19	26	GASOLINE AND NAPHTHA—
															Oklahoma (Group 3):
¾	.05⅜	.06	.06¼	.06¼	.06¼	.06½	.06¾	.06⅞	.07	.07⅛	.07¼	.07⅜	.07½	.07½	50-52 450 endpoint
¾	.05⅜	.06	.06¼	.06½	.06½	.06½	.06¾	.07	.07⅛	.07¼	.07¼	.07⅜	.07½	.07½	56-58 450 endpoint
417	.06490	.06570	.06633	.06838	.06851	.06940	.07106	.07300	.07573	.07547	.07655	.07828	.07939	.07923	*58-60 437 endpoint (U. S. Motor)
900	.06807	.06880	.07172	.07125	.07096	.07000	.07271	.07500	.07550	.07750	.07961	.08000	.08000	.08125	*60-62 400 endpoint
125	.07214	.07250	.07250	.07062	.07250	.07214	.07½	.07⅞	.07⅞	.07896	.08187	.08187	.08125	.083	*64-66 375 endpoint
¼	.07¼	.07¼	.07½	.07½	.07½	.07½	.07½	.07⅞	.07⅞	.08	.08	.08	.08⅛	.08½	68-70 360 endpoint
															*Starting on February 14, weighted average prices as re
¼	.06⅛	.06⅜	.06½	.06⅝	.06⅝	.06¾	.07	.07⅛	.07⅜	.07½	.07½	.07⅝	.07¾	.07⅞	North Texas:
¾	.06¼	.07⅛	.07⅛	.07⅛	.07¼	.07½	.07⅝	.07¾	.07⅞	.07⅞	.08	.08⅛	.08¼	.08⅜	58-60 437 endpoint (U. S. Motor)
⅜	.06⅝	.06⅞	.07	.07	.07	.07¼	.07¼	.07⅜	.07⅝	.07⅞	.07⅞	.08	.08⅛	.08¼	64-66 375 endpoint
															64-66 390 endpoint
															North Louisiana:
½	.06¾	.07	.07	.07¼	.07¼	.07¼	.07½	.07½	.07⅝	.07⅞	.08	.08¼	.08¼	.08½	58-60 437 endpoint (U. S. Motor)
															Pennsylvania:
¾	.07¾	.07¾	.07¾	.08¼	.08½	.08⅜	.08¾	.08¾	.08⅜	.09¼	.09¾	.09¾	.10	.10	52 Naphtha
	.08¼	.08¼	.08¼	.08¾	.08¾	.09¼	.09¼	.09½	.09¾	.10	.10¼	.10¼	.10½	.10½	58 Gasoline
½	.08½	.08½	.08½	.09	.09	.09½	.09½	.09¾	.10	.10¼	.10⅜	.10⅜	.11	.11	60 Gasoline
¾	.09¼	.09¼	.09¼	.09½	.09½	.10	.10	.10½	.10½	.10¾	.11¼	.11¼	.11⅜	.11¾	64 Gasoline
															California:
½	.09	.08	.09	.09½	.10½	.10½	.10½	.10½	.10½	.10	.09	.09	.08¾	.08½	58-60 437 endpoint (U. S. Motor) domestic
															NATURAL GASOLINE—
															Oklahoma (Group 3):
¾	.04½	.04⅛	.04¾	.05¾	.06¼	.06	.05½	.06⅜	.06⅜	.05½	.06	.06	.05¾	.06⅜	Grade A, 72-79.9, 375 endpoint, rec. 90%
⅞	.04¼	.04⅛	.04⅜	.05¾	.06¼	.06	.05½	.06⅜	.06¼	.05½	.06	.06	.06	.06⅜	Grade AA, 80-87.9, 375 endpoint, rec. 90%
	.04	.03⅝	.03¾	.04½	.05⅝	.05¼	.05¼	.05½	.05½	.05¼	.05½	.05¾	.05¾	.06¼	Grade B, 76-83.9, 375 endpoint, rec. 85%
¾	.03¾	.03½	.03¾	.04½	.05⅝	.05¼	.05¼	.05½	.05½	.05¼	.05½	.05¾	.05¾	.06¼	Grade BB, 84-92, 375 endpoint, rec. 85%
½	.03¼	.03⅛	.03¾	.04¼	.05	.05	.05	.05¼	.05¼	.04⅞	.05¼	.05½	.05¾	.06¼	Grade C, 80-90, 375 endpoint, rec. 78%
															North Texas:
⅞	.04½	.04¼	.04⅜	.05¾	.06¼	.06	.05½	.06¼	.06¼	.05½	.06	.06	.05¾	.06⅜	Grade A, 72-79.9, 375 endpoint, rec. 90%
	.04	.03⅝	.03¾	.04½	.05¾	.05¼	.05⅝	.05⅝	.05¼	.05¼	.05½	.05¾	.05¾	.06¼	Grade B, 76-83.9, 375 endpoint, rec. 85%
⅝	.03¼	.03¼	.03¾	.04⅜	.05	.05	.05	.05¼	.05¼	.05	.05¼	.05½	.05¾	.06¼	Grade C, 80-90, 375 endpoint, rec. 78%
															California:
½	.07¾	.07¾	.08	.08½	.08½	.08½	.08½	.08½	.08	.08	.08	.08	.07½	.07¼	75-85 375-390 endpoint
															BURNING OILS—
															Oklahoma (Group 3):
¼	.04⅜	.04½	.04⅜	.05	.05	.05	.05⅛	.05¼	.05⅜	.05¼	.05	.05	.04⅞	.04¾	41-43 water white Kerosene
¾	.04¾	.04⅞	.05⅛	.05⅜	.05¼	.05¼	.05⅝	.05⅞	.05¾	.05¾	.05⅝	.05⅝	.05⅛	.05	42-44 water white Kerosene
															North Texas:
4	.04¼	.04⅜	.04⅝	.05½	.05½	.05½	.04⅞	.05	.05¼	.05⅛	.04¾	.04⅝	.04¾	.04⅜	41-43 water white Kerosene
															Pennsylvania:
¾	.05¾	.05¾	.05¾	.06	.06	.06	.06	.06¼	.06¼	.06¼	.06½	.06½	.06¼	.06¼	43 Kerosene prime white
	.06	.06	.06	.06¼	.06¼	.06½	.06½	.06½	.06½	.06½	.06½	.06½	.06¼	.06¼	45 Kerosene water white
															California:
½	.05½	.05½	.05½	.05½	.05½	.05½	.05½	.05½	.06	.06	.06	.06	.06	.06	38-40 water white Kerosene (high-burning test)
	.07	.06½	.07	.07½	.08	.08	.08	.08	.08	.08	.07¼	.07¼	.07¼	.06¾	Engine Distillate, 43-44, 445 endpoint
½	.06½	.06¼	.06½	.06½	.07½	.07	.07	.07	.07½	.07½	.06¾	.06¾	.06¾	.06½	Engine Distillate, 42-44, 480 endpoint
															FUEL OILS—
															Oklahoma (Group 3):
½	.77½	.80	.80	.80	.75	.72½	.70	.70	.70	.70	.67½	.65	.60	.60	Below 18 Fuel Oil, bbl.
	.85	.85	.85	.85	.85	.82½	.77½	.77½	.77½	.75	.75	.72½	.67½	.67½	24-26 Fuel Oil, bbl.
½	.02½	.02½	.02⅝	.02⅝	.02½	.02½	.02⅝	.02⅝	.02⅝	.02½	.02½	.02½	.02½	.02½	32-36 Gas Oil (dark)
	03	.03	.03	.03	.03	.03	.03¼	.03¼	.03¼	.03¼	.03¼	.03¼	.03⅛	.03⅛	38-40 Distillate
															North Texas:
	.75	.75	.75	.75	.75	.70	.70	.70	.70	.70	.65	.65	.57½	.60	24-26 Fuel Oil, per bbl.
⅝	.02⅜	.02⅜	.02⅜	.02⅜	.02⅜	.02⅜	.02½	.02½	.02½	.02½	.02½	.02⅜	.02¼	.02¼	32-36 Gas Oil (straw)
	.03	.03	.03	.03	.03	.03	.03	.03	.03	.03	.03	.02⅞	.02⅞	.02⅞	38-40 Straw Distillate
															North Louisiana:
½	97½	.85	.85	.85	.85	.85	.85	.85	.85	.85	.85	.80	.80	.80	18-20 Fuel Oil, per bbl.
	1.15	1.15	1.15	1.15	1.15	1.15	1.15	1.15	1.15	1.15	1.15	1.15	1.15	1.10	Gulf Coast:
¼	.04¼	.04¼	.04¼	.04¼	.04¼	.04¼	.04¼	.04¼	.04¼	.04⅛	.04⅛	.04⅛	.04⅛	.04⅛	Bunker "C" Fuel, per bbl.
															Gas Oil
⅝	.04⅞	.04⅞	.04⅞	.04¾	.04¾	.04¾	.04⅜	.04¾	.04¾	.04¾	.04¾	.04¾	.04¾	.04¾	Pennsylvania:
	.05	.05	.05	.05	.05	.05	.05	.05	.05	.05	.05	.05	.05	.05	30-34 Fuel Oil
															36-40 Fuel Oil
½	.02½	.02½	.02½	.02½	.02½	.02½	.02½	.02½	.02½	.02½	.02½	.02½	.02½	.02½	California:
	.85	.85	.85	.85	.85	.85	.85	.85	.85	.85	.85	.80	.85	.85	27-32 Distillate
	1.15	1.15	1.15	1.15	1.15	1.15	1.15	1.15	1.15	1.15	1.15	1.15	1.15	1.15	15-20 Fuel Oil (tidewater) Bunker
															27 plus Diesel, per bbl.
															LUBRICATING OIL AND WAX—
															Oklahoma (Group 3):
	.06	.06	.06	.06	.06	.06	.06	.06	.06	.06	.06	.06	.06	.06	100 vis., 3 color, 20-25 cold test
	.09⅜	.09⅜	.09⅜	.09⅜	.09⅜	.09⅜	.09⅜	.09⅜	.09⅜	.09⅜	.09⅜	.09⅜	.09⅜	.09⅜	180 vis., 3 color, 23-28 cold test
	.09½	.09½	.09½	.09½	.09½	.09½	.09½	.09½	.09½	.09½	.09½	.09½	.09½	.09½	200 vis., 3 color, 23-28 cold test
	.09⅝	.09⅝	.09⅝	.09⅝	.09⅝	.09⅝	.09⅝	.09⅝	.09⅝	.09⅝	.09⅝	.09⅝	.09⅝	.09⅝	180 vis., 5 color, 23-28 cold test
	.09¼	.09¼	.09¼	.09¼	.09¼	.09¼	.09¼	.09¼	.09¼	.09¼	.09¼	.09¼	.09¼	.09¼	200 vis., 5 color, 23-28 cold test
	.12¼	.12¼	.12¼	.12¼	.12¼	.12¼	.12¼	.12¼	.12¼	.12¼	.12¼	.12¼	.12¼	.12¼	240 vis., 5 color, 25-30 cold test
	.22	.22	.22	.22	.22	.22	.22	.22	.22	.22	.22	.22	.22	.22	150-160 vis. @ 210 Bright Stock
	.08	.08	.08	.08	.08	.08	.08	.08	.08	.08	.08	.08	.08	.08	600 steam refined, light green
	.03¼	.03¼	.03¼	.03¼	.03¼	.03½	.03½	.03½	.03½	.03¾	.03⅞	.04	.04	.04	124-126 White Crude Scale Wax, lb.
															Pennsylvania:
	.14	.14	.14	.14	.14	.14	.14	.14	.14	.14	.15	.14	.18¼	.18¼	600 Pennsylvania flash
	26½	.26½	.26½	.27	.28	.28½	.28½	28½	.28½	.30	.30	.33	.34	.34	Pennsylvania Bright Stock
															Gulf Coast:
	.07½	.07½	.09½	.09½	.09½	.09½	.10	.10	.10	.10	.10	.10	.10	.10	200 vis., 3 color, pale
	.07½	.07½	.07½	.07½	.07½	.07½	.08	.08	.08	.08	.08	.08½	.08½	.08½	200 vis., 5-6 color, red
															California:
	.10	.10	.10	.10	.10	.10	.10	.10	.10	.10	.10	.10	.10	.10	200 vis., 2½-3 color
	.08½	.08½	.08½	.08½	.08½	.08½	.08½	.08½	.08½	.08½	.08½	.08½	.08½	.08½	200 vis., 4½-5 color, red
															NEW YORK DOMESTIC MARKET—
	.08¾	.09	.09¼	.09½	.09½	.09¾	.09¾	.10¼	.10¼	.10¼	.10¼	.10¾	.10¾	.10¾	58-60 437 U. S. Motor Gasoline
	.07½	.07½	.07½	.07½	.07½	.07½	.07½	.07½	.07½	.07½	.07½	.07½	.08	.08	41-43 water white Kerosene
	.05½	.05½	.05¼	.05½	.05¼	.05¼	.05¼	.05¼	.05¼	.05¼	.05¼	.05¼	.05¼	.05¼	Gas Oil, 32-36 gravity
	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	†Diesel Fuel Oil, 28-30, bbl.
	1.35	1.35	1.35	1.35	1.35	1.35	1.25	1.25	1.25	1.25	1.25	1.25	1.25	1.25	*Bunker "C" Fuel Oil, 14-16, bbl.
	.07	.07	.07¼	.07	.07	.07	.07	.07	.07	.07	.07	.07	.07	.07	28 pale Paraffin Oil
	.10½	.10½	.10½	.10½	.10½	.10½	.10½	.10½	.10½	.10½	.10½	.10½	.10½	.10½	250 red Paraffin Oil
	.04	.04	.03⅞	.04	.03⅞	.03⅞	.04	.04⅛	.04⅛	.04⅛	.04¼	.04¼	.04¼	.04⅜	120-122 a.m.p. Wax, lb.
	.03⅜	.03⅜	.03⅜	.03⅜	.03¼	.03¼	.03¼	.03¼	.03¼	.03¼	.03¼	.03¼	.03¼	.03¼	Amber Petrolatum
															*Lighterage, 5c a barrel extra. †Lighterage, 6.5c a
															NEW YORK (RAYONNE) EXPORT MARKET—
	.2465	.2490	.2515	.2515	.2540	.2540	.2540	.2540	.2540	.2540	.2540	.2590	.2590	.2590	58-60 437 U. S. Motor Gasoline, cases
	.1690	.1690	.1715	.1715	.1740	.1740	.1740	.1740	.1740	.1740	.1740	.1740	.1740	.1740	Kerosene, standard white, cases
	.1790	.1790	.1815	.1815	.1840	.1840	.1840	.1840	.1840	.1840	.1840	.1840	.1840	.1840	Kerosene, water white, cases
	.17	.17	.16½	.16¾	.16¾	.16¾	.16¾	.17	.17½	.17½	.17½	.18½	.18½	.18½	600 steam refined Cylinder Stock, bbls.
	.40	.40	.36	.37	.36	.37	.37	.38	.39	.39	.39	.41	.42	.42	Light 140-150 Bright Stock
	.38	.38	.34	.35	.34	.34½	.34½	.35½	.37	.37	.37	.39	.40	.40	Dark 140-150 Bright Stock
															LOS ANGELES EXPORT PRICES—
	.05	.05	.05	.05	.05	.05	.05	.05	.05	.05	.05	.05	.05	.05	Kerosene, water white
	.06¼	.06¼	.06¼	.06½	.07¼	.07¼	.07¼	.07¼	.07¾	.07¾	.07½	.07½	.07¾	.07¾	Gasoline, 53-55 437 endpoint

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TS PER GALLON UNLESS OTHERWISE NOTED

			July				August				
19	26	GASOLINE AND NAPHTHA—	3	10	17	24	31	7	14	21	28
.07½	.07½	Oklahoma (Group 3):									
.07½	.07½	50-52 450 endpoint	.07⅝	.07⅝	.07⅞	.08	.09	.09⅛	.09⅛	.09¼	.09¼
.07939	.07923	56-58 450 endpoint	.07⅝	.07¾	.08	.08⅛	.09	.09⅛	.09⅛	.09¼	.09¼
.08000	.08125	*58-60 437 endpoint (U. S. Motor)	.07945	.08131	.08406	.08605	.09088	.09474	.09683	.09710	.09664
.08125	.083	*60-62 400 endpoint	.08031	.08094	.08328	.09000	.09¾	.09920	.10343	.10354	.10333
.08⅛	.08½	*64-66 375 endpoint	.08292	.08555	.08750	.09125	.10125	.10344	.10833	.11000	(†)
		68-70 360 endpoint	.08⅝	.08¾	.09	.09½	.10¼	.10⅝	.10⅞	.11¼	.11¼
		*Starting on February 14, weighted average prices as reported by representative refiners. Sales to jobbers only. †No sales reported.									
.07¾	.07⅞	North Texas:									
.08⅛	.08⅜	58-60 437 endpoint (U. S. Motor)	.07⅞	.07⅞	.08¼	.08⅝	.09¼	.09½	.09⅝	.09¾	.09⅝
.08⅛	.08¼	64-66 375 endpoint	.08½	.08½	.08⅞	.09¾	.10¼	.10½	.10⅝	.10⅝	.10⅝
		64-66 390 endpoint	.08⅜	.08⅜	.08⅝	.09⅜	.09¾	.10	.10¼	.10¼	.10¼
		North Louisiana:									
.08¼	.08½	58-60 437 endpoint (U. S. Motor)	.08½	.08½	.08½	.08¾	.09½	.10	.10¼	.10¾	.10½
		Pennsylvania:									
.10	.10	52 Naphtha	.09¾	.10	.10	.10¼	.10¼	.10¼	.10¼	.11	.11¼
.10½	.10½	58 Gasoline	.10½	.10½	.10½	.10½	.10½	.10¾	.11½	.11¼	.12
.11	.11	60 Gasoline	.11	.11	.11	.11	.11	.11¼	.11½	.11¾	.12¾
.11⅜	.11¾	64 Gasoline	.11¾	.11¾	.11¾	.11¾	.11¾	.11¾	.11¾	.12¾	.13½
		California:									
.08¾	.08½	58-60 437 endpoint (U. S. Motor) domestic	.08½	.09	.09	.09	.09¼	.09½	.09½	.09½	.09½
		NATURAL GASOLINE—									
		Oklahoma (Group 3):									
.05¾	.06⅜	Grade A, 72-79.9, 375 endpoint, rec. 90%	.06⅞	.07⅜	.08½	.09½	.10⅛	.10½	.10¾	.10¾	.10¾
.06	.06⅜	Grade AA, 80-87.9, 375 endpoint, rec. 90%	.06⅞	.07⅜	.08½	.09½	.10⅛	.10½	.10¾	.10¾	.10¾
.05¾	.06¼	Grade B, 76-83.9, 375 endpoint, rec. 85%	.06¾	.07¼	.08½	.09½	.10⅛	.10½	.10¾	.10¾	.10¾
.05¾	.06¼	Grade BB, 84-92, 375 endpoint, rec. 85%	.06¾	.07¼	.08½	.09½	.10⅛	.10½	.10¾	.10¾	.10¾
.05¾	.06¼	Grade C, 80-90, 375 endpoint, rec. 78%	.06⅞	.07¼	.08⅜	.09½	.10⅛	.10½	.10¾	.10¾	.10¾
		North Texas:									
.05¾	.06⅜	Grade A, 72-79.9, 375 endpoint, rec. 90%	.06⅞	.07¼	.08½	.09½	.10⅛	.10½	.10¾	.10¾	.10¾
.05¾	.06¼	Grade B, 76-83.9, 375 endpoint, rec. 85%	.06¾	.07⅛	.08½	.09½	.10⅛	.10½	.10¾	.10¾	.10¾
.05¾	.06¼	Grade C, 80-90, 375 endpoint, rec. 78%	.06⅝	.07⅛	.08⅜	.09½	.10⅛	.10½	.10⅝	.10⅝	.10⅝
		California:									
.07½	.07¼	75-85 375-390 endpoint	.06	.05½	.05½	.05½	.06½	.06½	.06¾	.06¾	.06¾
		BURNING OILS—									
		Oklahoma (Group 3):									
.04¾	.04¾	41-43 water white Kerosene	.04¾	.04¾	.04¾	.04¾	.05¼	.05½	.06	.06¼	.06½
.05⅛	.05	42-44 water white Kerosene	.04⅞	.04⅞	.04⅞	.05	.05¾	.06	.06½	.06¾	.06¾
		North Texas:									
.04¾	.04⅜	41-43 water white Kerosene	.04¼	.04¼	.04⅜	.04½	.05⅛	.05¼	.05¾	.06⅛	.06⅜
		Pennsylvania:									
.06¼	.06¼	43 Kerosene prime white	.06	.06	.06	.06	.05¾	.06	.06	.06¼	.06¾
.06¼	.06¼	45 Kerosene water white	.06¼	.06¼	.06	.06	.06	.06⅛	.06¼	.06¼	.07
		California:									
.06	.06	38-40 water white Kerosene (high-burning test)	.06	.06	.06	.06	.06½	.06¾	.06¾	.06¾	.06¾
.07¼	.06¾	Engine Distillate, 43-44, 445 endpoint	.06¾	.06¾	.06¾	.06¾	.06¾	.06¾	.06¾	.06¾	.06¾
.06¾	.06½	Engine Distillate, 42-44, 480 endpoint	.06½	.06½	.06½	.06½	.06½	.06½	.06½	.06½	.06½
		FUEL OILS—									
		Oklahoma (Group 3):									
.60	.60	Below 18 Fuel Oil, bbl.	.60	.60	.55	.55	.55	.55	.55	.55	.55
.67½	.67½	24-26 Fuel Oil, bbl.	.67½	.67½	.62½	.60	.60	.60	.62½	.62½	.62½
.02½	.02½	32-36 Gas Oil (dark)	.02½	.02½	.02½	.02½	.02½	.02½	.02½	.02½	.02½
.03⅜	.03⅜	38-40 Distillate	.03⅜	.03⅜	.03⅜	.03⅜	.03⅜	.03⅜	.03⅜	.03⅜	.03⅜
		North Texas:									
.57½	.60	24-26 Fuel Oil, per bbl.	.60	.60	.60	.55	.55	.55	.55	.55	.55
.02¼	.02¼	32-36 Gas Oil (straw)	.02¼	.02¼	.02¼	.02¼	.02¼	.02¼	.02¼	.02¼	.02¼
.02⅞	.02⅞	38-40 Straw Distillate	.02⅞	.02⅞	.02⅞	.02⅞	.02⅞	.02⅞	.02⅞	.02⅞	.02⅞
		North Louisiana:									
.80	.80	18-20 Fuel Oil, per bbl.	.80	.80	.80	.80	.80	.80	.80	.82½	.82½
		Gulf Coast:									
.15	1.10	Bunker "C" Fuel, per bbl.	1.10	1.10	1.10	1.00	1.00	.85	.85	.85	.85
.04⅛	.04⅛	Gas Oil	.04⅛	.04⅛	.04⅛	.04⅛	.04⅛	.04⅛	.04⅛	.04⅛	.04⅛
		Pennsylvania:									
.04¾	.04¾	30-34 Fuel Oil	.04¾	.04½	.04¼	.04¼	.04¼	.04¼	.04¼	.04¼	.04¼
.05	.05	36-40 Fuel Oil	.05	.05	.04⅝	.04½	.04½	.04½	.04½	.04½	.04½
		California:									
.02½	.02½	27-32 Distillate	.02½	.02½	.02½	.02½	.02½	.03	.03	.03	.03
.85	.85	15-20 Fuel Oil (tidewater) Bunker	.85	.85	.85	.85	.85	.85	.85	.85	.85
.15	1.15	27 plus Diesel, per bbl.	1.15	1.15	1.15	1.15	1.15	1.15	1.15	1.15	1.15
		LUBRICATING OIL AND WAX—									
		Oklahoma (Group 3):									
.06	.06	100 vis., 3 color, 20-25 cold test	.06	.06	.06	.06	.06	.06	.06	.06	.06
.09⅜	.09⅜	180 vis., 3 color, 23-28 cold test	.09⅜	.09⅜	.09⅜	.09⅜	.09⅜	.09⅜	.09⅜	.09⅜	.09⅜
.09½	.09½	200 vis., 3 color, 23-28 cold test	.09½	.09½	.09½	.09½	.09½	.09½	.09½	.09½	.09½
.09⅛	.09⅛	180 vis., 5 color, 23-28 cold test	.09⅛	.09⅛	.09⅛	.09⅛	.09⅛	.09⅛	.09⅛	.09⅛	.09⅛
.09¼	.09¼	200 vis., 5 color, 23-28 cold test	.09¼	.09¼	.09¼	.09¼	.09¼	.09¼	.09¼	.09¼	.09¼
.12¼	.12¼	240 vis., 5 color, 25-30 cold test	.12¼	.12¼	.12¼	.12¼	.12¼	.12¼	.12¼	.12¼	.12¼
.22	.22	150-160 vis. @ 210 Bright Stock	.22	.22	.23	.23	.25	.25	.25	.25	.25
.08	.08	600 steam refined, light green	.08	.08	.08	.08	.08	.08	.08	.08	.08
.04	.04	124-126 White Crude Scale Wax, lb.	.04	.04	.04¼	.04¼	.04¼	.04¼	.04⅛	.04¼	.04½
		Pennsylvania:									
.18¼	.18¼	600 Pennsylvania flash	.18¼	.18¼	.18¼	.18¼	.18¼	.18¼	.18¼	.18¼	.18¼
.34	.34	Pennsylvania Bright Stock	.35	.35	.35	.36	.36	.36	.36	.36	.36
		Gulf Coast:									
.10	.10	200 vis., 3 color, pale	.10	.10	.10	.10	.10	.09½	.09½	.09½	.09½
.08½	.08½	200 vis., 5-6 color, red	.08½	.08½	.08½	.08½	.08½	.08¾	.08¼	.08¼	.08¼
		California:									
.10	.10	200 vis., 2½-3 color	.10	.10	.10	.10	.10	.10½	.11¼	.11¼	.11¼
.08½	.08½	200 vis., 4½-5 color, red	.08½	.08½	.08½	.08½	.08½	.09½	.10½	.10½	.10½
		NEW YORK DOMESTIC MARKET—									
.10¾	.10¾	58-60 437 U. S. Motor Gasoline	.10¾	.10¾	.10¾	.10¾	.11¼	.11¼	.11¾	.11¾	.11¾
.08	.08	41-43 water white Kerosene	.08	.08	.08	.07½	.07½	.07½	.07¾	.07¾	.08¼
.05¼	.05¼	Gas Oil, 32-36 gravity	.05¼	.05¼	.05¼	.05¼	.05¼	.05¼	.05¼	.05¼	.05¼
.00	2.00	†Diesel Fuel Oil, 28-30, bbl.	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
.25	1.25	*Bunker "C" Fuel Oil, 14-16, bbl.	1.15	1.15	1.05	1.05	1.05	1.05	1.05	1.05	1.05
.07	.07	28 pale Paraffin Oil	.07	.07	.07	.07	.07	.07	.07	.07	.07
.10½	.10½	250 red Paraffin Oil	.10½	.10½	.10½	.10½	.10¾	.10½	.10½	.10½	.10½
.04¼	.04⅜	120-122 a.m.p. Wax, lb.	.04¾	.04¾	.04½	.04½	.04¾	.04¾	.04¾	.04¾	.05
.03¼	.03¼	Amber Petrolatum	.03¼	.03¼	.03⅜	.03⅜	.03⅜	.03⅜	.03½	.03½	.03½
		*Lighterage, 5c a barrel extra. †Lighterage, 6.5c a barrel extra.									
		NEW YORK (BAYONNE) EXPORT MARKET—									
.2590	.2590	58-60 437 U. S. Motor Gasoline, cases	.2590	.2590	.2640	.2640	.2690	.2690	.2690	.2690	.2690
.1740	.1740	Kerosene, standard white, cases	.1740	.1740	.1715	.1715	.1715	.1740	.1740	.1740	.1740
.1840	.1840	Kerosene, water white, cases	.1840	.1840	.1815	.1815	.1815	.1840	.1865	.1865	.1865
.18½	.18½	600 steam refined Cylinder Stock, bbls.	.19	.19	.19	.19	.19	.19	.18½	.20	.20
.42	.42	Light 140-150 Bright Stock	.43	.43	.43	.44	.44	.44	.44	.44½	.44½
.40	.40	Dark 140-150 Bright Stock	.41	.41	.41	.42	.42	.42	.42	.42½	.42½
		LOS ANGELES EXPORT PRICES—									
.05	.05	Kerosene, water white	.05	.05	.05	.05	.05	.05¾	.05¾	.05¾	.05¾
.07¾	.07¾	Gasoline, 53-55 437 endpoint	.08	.08	.08	.08	.08¼	.08¼	.08¼	.08¼	.08¼

XUM

ducts for Export and Domestic Movement

		September				October					November				December			
	28	4	11	18	25	2	9	16	23	30	6	13	20	27	4	11	18	25
¼	.09¼	.09¼	.09⅛	.09	.08¾	.08¾	.08¾	.08¾	.08¾	.08¾	.08¾	.08½	.08½	.08½	.08¼	.08	.08	.07¾
	.09¼	.09¼	.09⅛	.09	.08¾	.08¾	.08¾	.08¾	.08¾	.08¾	.08½	.0933	.0932	.0927	.0913	.0874	.0871	.087
710	.09664	.09750	.09730	.09747	.09695	.09725	.09740	.09746	.09720	.09568	.09568	.0933	.0932	.0927	.0913	.0874	.0871	.087
354	.10333	(†)	.10375	.10438	.10158	.10125	.10250	.10250	.10180	.10250	.10250	.09½	.0975	.0984	.0955	.088	.090	.095
000	(†)	.11000	.11000	.11000	.11000	.10½	.11000	.11000	.10830	.11000	.11000	.1075	.10375	.1056	.1056	.1042	.1045	.1025
¼	.11¼	.11¼	.11	.10¾	.10½	.10½	.10½	.10½	.10½	.10¼	.10¼	.10¼	.10¼	.10	.10¼	.10	.09¾	.09½
¾	.09⅝	.09⅝	.09¼	.09¼	.09¼	.09¼	.09¼	.09¼	.09¼	.09	.09	.08¾	.08⅝	.08½	.08¼	.08	.08	08
⅞	.10⅜	.10⅜	.10¼	.10	.09¾	.09¾	.09¾	.09¾	.10	.09⅞	.09⅞	.09⅞	.09⅞	.09¾	.09½	.09¼	.09	.08¾
¼	.10¼	.10¼	.10	.09¾	.09⅝	.09⅝	.09⅝	.09⅝	.09⅝	.09¾	.09¾	.09½	.09½	.09½	.09⅜	.09	.08¾	.08¾
¾	.10½	.10½	.10¼	.10	.10	.09½	.09½	.09¾	.09¾	.09½	.09½	.09½	.09¼	.09¼	.09	.08¾	.08¾	.08¾
¼	.11¼	.11¼	.11¼	.11¼	.11¼	.11¼	.11	.10¾	.10¼	.10¼	.10¼	.10¼	.09¾	.10	.10	.10	.10	.09¼
¼	.12	.12	.11¾	.11¾	.11¼	.11¼	.11¼	.11	.11	.11	.11	.11	.11	.10½	.10½	.10½	.10¼	.10¼
¼	.12¾	.12¾	.12¾	.12¾	.12¾	.12	.12	.11¾	.11¾	.11¾	.11½	.11½	.11½	.11½	.11½	.11½	.11½	.11½
¼	.13½	.13½	.13½	.13½	.13½	.12¾	.12¾	.12¾	.12¾	.12¾	.12¾	.12¾	.12¾	.12¾	.12¾	.12¾	.12½	.12¼
½	.09½	.09½	.09½	.09½	.09½	.10	.10	.10	.10	.10	.10	.10	.10	.10	.10	.10	.10	.10
¾	.10¾	.09¾	.08¾	.09¼	.10	.09½	.10¼	.09⅞	.09⅝	.10⅛	.09⅝	.09⅜	.08¾	.09⅛	.09	.09	.08¾	.08⅜
¾	.10¾	.09¾	.08¾	.09¼	.09⅞	.09½	.10¼	.09⅞	.09⅝	.10⅛	.09⅝	.09¼	.08¾	.09⅛	.087⅛	.08¼	.07¾	.07⅜
¼	.10¾	.09¾	.08½	.09½	.09½	.09½	.09¾	.09⅝	.09⅝	.10	.09½	.09½	.08⅜	.08½	.08⅜	.07¾	.07¼	.06¾
¼	.10¾	.09⅝	.08⅝	.09⅞	.09⅜	.09⅜	.09¾	.09⅝	.09⅝	.10	.09½	.09½	.08⅜	.08½	.08⅜	.07¼	.06½	.06⅜
¾	.10¾	.09½	.08½	.08¾	.09¼	.09⅜	.09½	.09½	.09½	.09⅞	.09½	.09⅛	.08¼	.08½	.08¼	.07	.06½	.06⅜
¾	.10¾	.09⅝	.08⅝	.09⅛	.09¾	.09½	.10⅛	.09¾	.09½	.10	.09⅝	.09¼	.08¾	.09¼	.087⅛	.09	.08¾	.08¾
⅝	.10¾	.09⅝	.08½	.09⅛	.09½	.09½	.09¾	.09⅝	.09½	.10	.09½	.09	.08⅝	.08⅝	.08½	.07¾	.07¼	.06¾
¾	.10⅝	.09½	.08½	.08¾	.09¼	.09⅜	.09½	.09⅜	.09¼	.09¾	.09¼	.09	.08¼	.08½	.08¼	.07	.06½	.06⅜
¼	.063/4	.063/4	.063/4	.07	.07	.07¼	.07¼	.07¼	.07	.07	.07	.07	.07	.07	.07	.063/4	.063/4	.07¼
¼	.061/2	.061/2	.063/8	.063/8	.061/4	.061/4	.06	.06	.06	.057/8	.053/4	.053/4	.053/4	.053/4	.055/8	.051/2	.051/2	.051/2
¼	.063/4	.063/4	.063/4	.063/4	.065/8	.061/2	.061/2	.061/2	.061/2	.063/8	.06	.06	.06	.06	.057/8	.057/8	.057/8	.057/8
⅝	.063/8	.063/8	.061/8	.061/8	.06	.06	.057/8	.057/8	.053/4	.053/4	.055/8	.055/8	.055/8	.051/2	.053/8	.051/4	.051/4	.051/4
¼	.063/4	.07	.071/4	.071/4	.071/2	.071/2	.071/2	.071/2	.071/2	.071/4	.071/4	.071/4	.071/4	.071/4	.071/4	.071/4	.07	.07
¼	.07	.071/2	.073/4	.073/4	.073/4	.073/4	.071/2	.071/2	.071/4	.071/4	.071/4	.071/8	.071/8	.073/8	.073/8	.073/8	.073/8	.073/8
¾	.063/4	.063/4	.063/4	.063/4	.063/4	.063/4	.063/4	.063/4	.063/4	.063/4	.063/4	.063/4	.063/4	.063/4	.063/4	.063/4	.061/2	.061/2
¾	.063/4	.063/4	.063/4	.063/4	.063/4	.071/2	.071/2	.071/2	.071/2	.071/2	.071/2	.071/2	.071/2	.071/2	.071/2	.071/2	.071/2	.071/2
½	.061/2	.061/2	.061/2	.061/2	.061/2	.07	.07	.07	.07	.07	.07	.07	.07	.07	.07	.07	.07	.07
	.55	.55	.55	.55	.55	.55	.55	.55	.55	.521/2	.521/2	.521/2	.50	.50	.50	.50	.50	.50
½	.621/2	.621/2	.621/2	.621/2	.621/2	.621/2	.621/2	.60	.60	.60	.60	.60	.60	.621/2	.55	.55	.621/2	.621/2
½	.021/2	.021/2	.021/2	.021/2	.021/2	.021/2	.021/2	.023/8	.023/8	.023/8	.023/8	.023/8	.023/8	.023/8	.023/8	.023/8	.021/2	.021/2
⅜	.033/8	.033/8	.033/8	.033/8	.033/8	.033/8	.033/8	.033/4	.033/4	.033/4	.033/4	.033/4	.033/4	.033/8	.033/8	.033/8	.033/8	.033/8
	.55	.55	.55	.55	.55	.55	.55	.521/2	.521/2	.521/2	.521/2	.521/2	.521/2	.521/2	.521/2	.521/2	.521/2	.521/2
¼	.021/4	.021/4	.021/4	.021/4	.021/4	.021/4	.021/4	.021/4	.021/4	.021/4	.021/4	.021/4	.021/4	.021/4	.021/4	.021/4	.023/8	.023/8
⅜	.027/8	.027/8	.027/8	.027/8	.027/8	.027/8	.027/8	.027/8	.027/8	.027/8	.027/8	.027/8	.027/8	.031/8	.031/8	.031/4	.031/4	.031/4
½	.821/2	.821/2	.821/2	.821/2	.85	.75	.75	.70	.75	.70	.70	.70	.70	.70	.75	.75	.75	.75
	.85	.80	.75	.75	.75	75	.75	.80	.80	.80	.80	.80	.80	.80	.80	.80	.80	.80
⅜	.041/8	.041/8	.041/8	.041/8	.041/8	.041/4	.041/8	.04	.04	.04	.04	.04	.04	.04	.04	.041/4	.041/4	.041/4
¼	.041/4	.041/4	.041/4	.041/4	.041/4	.041/8	.041/8	.041/8	.041/8	.041/8	.041/8	.041/8	.041/4	.043/8	.043/8	.041/4	.041/2	.043/8
½	.041/2	.041/2	.041/2	.041/2	.041/2	.041/4	.041/4	.041/4	.041/4	.041/4	.041/2	.045/8	.045/8	.045/8	.045/8	.041/2	.041/2	.043/4
	.03	.03	.03	.03	.03	.03	.03	.03	.03	.03	.03	.03	.03	.03	.03	.03	.03	.03
	.85	.85	.85	.85	.85	.85	.85	.85	.85	.85	.85	.85	.85	.85	.85	.85	.85	.85
	1.15	1.15	1.15	1.15	1.15	1 15	1.15	1.15	1.15	1.15	1.15	1.15	1.15	1.15	1.15	1.15	1.15	1.15
	.06	.06	.06	.06	.06	.06	.06	.06	.06	.06	.06	.06	.06	.06	.06	.06	.06	.06
⅝	.093/8	.093/8	.093/8	.093/8	.093/8	.093/8	.093/8	.093/8	.093/8	.093/8	.093/8	.093/8	.091/4	.091/4	.091/4	.091/4	.091/4	.091/4
⅜	.091/2	.091/2	.091/2	.091/2	.091/2	.091/2	.091/2	.091/2	.091/2	.091/2	.091/2	.091/2	.091/4	.091/4	.091/4	.091/4	.091/4	.091/4
⅜	.091/8	.091/8	.091/8	.091/8	.091/8	.091/8	.091/8	.091/8	.091/8	.091/8	.091/8	.091/8	.09	.09	.09	.09	.09	.09
⅜	.091/4	.091/4	.091/4	.091/4	.091/4	.091/4	.091/4	.091/4	.091/4	.091/4	.091/4	.091/4	.09	.09	.09	.09	.09	.09
⅜	.121/4	.121/4	.121/4	.121/4	.121/4	.121/4	.121/4	.121/4	.121/4	.121/4	.121/4	.121/4	.12	.12	.12	.12	.12	.12
	.25	.25	.25	.25	.25	.25	.25	.25	.25	.25	.25	.25	.25	.25	.25	.25	.25	.28
	.08	.08	.08	.08	.08	.08	.08	.08	.08	.08	.08	08	.08	.08	.08	.08	.08	.08
¼	.041/2	.043/4	.05	.05	.05	.05	.05	.05	.05	05	.05	.05	.05	.043/4	.043/4	.043/4	.05	.043/4
¼	.181/4	.19	.19	.19	.19	.19	.19	.19	.19	.211/2	.211/2	.211/2	.211/2	.221/2	.231/2	.231/2	.27	.291/2
	.36	.36	.36	.36	.36	.36	.351/2	.351/2	.351/2	.33	.33	.33	.33	.341/2	.35	.35	.36	.36
½	.091/2	.091/2	.081/2	.081/2	.081/2	.081/2	.081/2	.081/2	.081/2	.081/2	.081/2	.081/2	.081/2	.081/2	.081/2	.081/2	.081/2	.081/2
	.081/4	.081/4	.081/4	.081/4	.081/4	.081/4	.081/4	.081/4	.081/4	.081/4	.081/4	.081/4	.081/4	.081/4	.081/4	.081/4	.081/4	.081/4
⅜	.113/4	.111/2	.111/2	.111/2	.111/2	.111/2	.111/2	.111/2	.111/2	.111/2	.111/2	111/2	.111/2	.111/2	.111/2	.111/2	.111/2	.111/2
½	.101/2	.101/2	.101/2	.101/2	.101/2	.111/2	.111/2	.111/2	.111/2	.111/2	.111/2	.111/2	.111/2	.111/2	.111/2	.111/2	.111/2	.111/2
	.113/4	.113/4	.113/4	.113/4	.113/4	.113/4	.111/4	.111/4	.111/4	.111/4	.11	.11	.11	.11	.11	.11	.11	.11
	.081/2	.081/2	.081/2	.081/2	.081/2	.09	.09	.09	.09	.09	.09	.09	.09	.09	.09	.09	.09	09
	.051/4	.051/4	.051/4	.051/4	.051/4	.051/4	.051/4	.051/4	.051/4	.051/4	.051/4	.051/4	.051/4	.051/4	.051/4	.051/4	.051/4	051/4
	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
	1.05	1.05	1.05	1.05	1.05	1.05	1.05	1.05	1.05	1.05	1 05	1.05	1.05	1.05	1.05	1.05	1.05	1.05
	.07	.07	.07	.07	.07	.07	.07	.07	.07	.07	.07	071/2	.071/2	.071/2	.071/2	.071/2	.071/2	.071/2
	.101/2	.101/2	.101/2	.101/2	.101/2	.101/2	.101/2	.101/2	.101/2	.101/2	.11	.11	.11	.11	.11	.11	.11	.11
	.05	.051/8	.053/4	.053/4	.053/4	.051/2	.051/2	.051/2	.051/2	.055/8	.055/8	.053/4	.053/4	.053/4	.053/4	.051/2	.051/2	.055/8
	.031/2	.031/2	.031/2	.031/2	.031/2	.031/2	.031/2	.031/2	.031/2	.031/2	.031/2	.031/2	.031/2	.031/2	.031/2	.031/2	.031/2	031/2
	.2690	.2690	.2690	.2690	.2690	.2690	.2690	.2690	.2640	.2640	.2640	.2640	.2640	.2640	.2640	.2640	.2640	.2640
	.1740	.1740	.1740	.1740	.1740	.1740	.1765	.1765	.1765	.1765	.1765	.1765	1765	.1765	.1765	.1765	.1765	.1765
	.1865	.1865	.1865	.1865	.1865	.1865	.1890	.1890	.1890	.1890	.1890	.1890	1890	.1890	.1890	.1890	.1890	.1890
	.20	.201/2	.201/2	.201/2	.20	.20	.20	.20	.20	.20	.21	.21	.221/2	.231/2	.25	.25	.27	.27
	.441/2	.441/2	.441/2	.441/2	.44	.44	.44	.431/2	.431/2	.421/2	.40	.40	.42	.43	.43	.43	.44	.44
	.421/2	.421/2	.421/2	.421/2	.42	.42	.42	.411/2	.411/2	.401/2	.39	.39	.401/2	.41	.42	.42	.42	42
	.053/4	.053/4	.053/4	.053/4	.053/4	.053/4	.051/4	.051/4	.051/4	.051/4	.051/4	.051/4	.051/4	.051/4	.051/4	.051/4	.051/2	.051/2
	.081/4	.081/2	.081/2	.081/2	.081/2	.081/2	.081/2	.081/2	.081/2	.081/4	.081/4	.081/4	.081/4	.081/4	.081/4	.08	.08	.08

XUM

Table for 1928 Showing Date and Am

ARKANSAS-NORTH LOUISIANA

Caddo, Bull Bayou, Crichton, DeSoto, Haynesville, Homer, (La.) and El Dorado, Ark.

	Jan. 1	Feb. 21	Aug. 2*
Below 28	1.10	.91	.81
28 to 28.9	1.12	.96	.88
29 to 29.9	1.14	1.01	.95
30 to 30.9	1.16	1.06	1.02
31 to 31.9	1.18	1.11	1.09
32 to 32.9	1.20	1.16	1.16
33 to 33.9	1.22	1.19	1.21
34 to 34.9	1.24	1.22	1.26
35 to 35.9	1.26	1.25	1.31
36 to 36.9	1.28	1.28	1.36
37 to 37.9	1.30	1.31	1.41
38 to 38.9	1.32	1.34	1.46
39 to 39.9	1.34	1.37	1.51
40 to 40.9	1.36	1.40	1.56
41 to 41.9	1.38	1.43	1.61
42 to 42.9	1.40	1.46	1.66
43 to 43.9	1.42	1.49	1.71
44 to 44.9	1.44	1.52	1.76
45 to 45.9	1.46	1.55	1.76
46 to 46.9	1.48	1.58	1.76
47 to 47.9	1.50	1.61	1.76
48 to 48.9	1.52	1.64	1.76
49 to 49.9	1.54	1.67	1.76
50 to 50.9	1.56	1.70	1.76
51 to 51.9	1.58	1.73	1.76
52 and above	1.60	1.76	1.76

Major companies posting are:

Magnolia Petroleum Co., Pine Island (Caddo), Haynesville, Bull Bayou and El Dorado.

Standard Oil Co. (La.) and Gulf Refining Co., all fields.

Atlantic Oil Producing Co., Homer, Haynesville and West El Dorado.

The Texas Company, Caddo, Bull Bayou and Crichton.

Louisiana Oil Refining Corp., all fields.

*Magnolia met these prices August 7. The Texas Company posted prices below 28 gravity at 7-cent differential per degree August 8, making minimum of 60 cents for all oil below 25 gravity.

Champagnolle—	July 26
Below 24	.75
24 to 27.9	.85
28 to 28.9	1.00
30 to 32.9	1.15
33 and above	1.25

First posted by Root Refineries July 26.

Stephens—	Jan. 1	Feb. 21	Aug. 3
Below 28	1.00	.85	.75
28 to 28.9	1.02	.87	.77
29 to 29.9	1.04	.89	.79
30 to 30.9	1.06	.91	.81
31 to 31.9	1.08	.93	.83
32 and above	1.10	.95	.85

Posted by Atlantic Oil Refining Corp. and Louisiana Oil Refining Corp.

Smackover—	Jan. 1	Feb. 6*
Below 24	.85	.75
24 to 24.9	1.00	.90
25 to 25.9	1.00	.90
26 to 26.9	1.00	.90
27 and above	1.00	.90
27 to 27.9	1.00	.90
28 to 28.9	1.00	.90
29 to 29.9	1.00	.90
30 and above	1.00	.90

Posted by Standard Oil Co., The Texas Company, Gulf Refining Co., Atlantic Oil Producing Co., Louisiana Oil Refining Corp. and Magnolia Petroleum Co.

*Posted by Louisiana Oil Refining Corp. Met by others February 7.

	Jan. 1	Feb. 11	Apr. 11	July 17
Cotton Valley	.85	.75	(*)	(*)
Bellevue	1.20	1.20	1.20	1.20
Urania	.75	.75	.75	.85
Calion	1.00	1.00	1.00	....

Cotton Valley: Standard Oil Co. of Louisiana, Magnolia Petroleum Co. and Louisiana, Oil Refining Corp.

Bellevue: Standard Oil Co. of Louisiana, Gulf Refining Co. and Louisiana Oil Refining Corp.

Calion (East El Dorado): Gulf Refining Co.

*Standard of Louisiana posted Cotton Valley crude 36 gravity and above on regular Mid-Continent crude price schedule. All crude below 36 gravity remained 75 cents.

SOUTH CENTRAL AND SOUTHWESTERN TEXAS

Lytton Springs—Posted by the Magnolia Pipe Line Co. and Humble Pipe Line Co. under the Mid-Continent gravity schedule.

Thrall—Effective March 16, 1926, Magnolia Pipe Line Co posts same price as corresponding grade Mid-Continent crude less 19½ cents freight per cwt.

Rockdale-Minerva—	Jan. 1	May 15
Up to 37.9 gravity	1.25	1.25
38 to 38.9 gravity	1.27	1.27
39 to 39.9 gravity	1.29	1.29
40 and up gravity	1.31	1.31
Luling	1.00	1.00
Calliham	(*)	1.75
Mirando	1.00	1.00

*Not posted.

Somerset—	Jan. 1	
28 to 28.9 gravity	1.12	*1.05
29 to 29.9 gravity	1.14	1.05
30 to 30.9 gravity	1.16	1.05
31 to 31.9 gravity	1.18	1.05
32 to 32.9 gravity	1.20	1.05
33 to 33.9 gravity	1.22	1.07
34 to 34.9 gravity	1.24	1.09
35 to 35.9 gravity	1.26	1.11
36 to 36.9 gravity	1.28	1.13
37 to 37.9 gravity	1.30	1.15
38 and above	1.32	1.17

*Grayburg Pipe Line Co. only.

Note: Luling posted by the Magnolia Pipe Line Co. and Grayburg Pipe Line Co. Rockdale-Minerva by Kent-Middleton Refining Co. Callihan (Live Oak and McMullen Counties) by Dependable Oil Co. Mirando (Webb, Jim Hogg and Zapata Counties) by Texpata Pipe Line Co., Magnolia Pipe Line Co., Humble Oil & Refining Co. and the Crown Central Pipe Line Co. Somerset postel by Grayburg Pipe Line Co., Pioneer Oil Refining Co. and Witherspoon Refining Co.

GULF COAST

Jennings—On January 1 the Gulf Pipe Line Co. was paying $1.05.

Saratoga, Batson and Dayton—On January 1 the Sun Pipe Line Co. was paying $1.20.

	Jan. 1
Grade A	1.20
Grade B*	1.15
Gulf Coast light*:	
Below 25 gravity	1.15
25 to 25.9 gravity	1.17
26 to 26.9 gravity	1.19
27 to 27.9 gravity	1.21
28 to 28.9 gravity	1.23
29 to 29.9 gravity	1.25
30 to 30.9 gravity	1.27
31 to 31.9 gravity	1.29
32 to 32.9 gravity	1.31
33 to 33.9 gravity	1.33
34 to 34.9 gravity	1.35
35 to 35.9 gravity	1.37
36 to 36.9 gravity	1.39
37 to 37.9 gravity	1.41
38 to 38.9 gravity	1.43
39 to 39.9 gravity	1.45
40 and above gravity	1.47

Note—Gulf Coast includes Goose Creek, Hull, Liberty, West Columbia, Orange, Boling, Sour Lake, Humble, High Island, Pierce Junction and Spindletop Fields.

Grade A posted by Humble Oil Refining Co. and other major buyers.

*Grade B posted at flat price by The Texas Company. All other companies as Humble Oil & Refining Co., Gulf Pipe Line Co., Sun Pipe Line Co. and Magnolia Petroleum Co. (in Spindletop only) post Grade B crude on the same schedule as Gulf Coast light except do not differentiate price on gravities above 35. Oil 35 and above is posted at same price as 35 to 35.9 grade. The Texas Company is only one posting the complete schedule on Gulf Coast light oils.

EASTERN STATES

Joseph Seep Purchasing Agency

	Jan.	Feb.	June		July		Aug.	Sept.	Oct.	Nov.	Dec.	
	1	9	13	29	9	30	8	14	13	9	14	17
Pennsylvania grade oil in N. Y. Transit Lines (N. Y.)	2.80	...	3.05	...	3.20	3.20	3.20	3.35	3.45	3.60	3.85	3.85
Bradford oil in National Transit Lines (Pa.)	2.80	...	3.05	...	3.20	3.20	3.20	3.35	3.45	3.60	3.85	3.85
Pennsylvania grade oil in National Transit Lines (Pa.)	2.65	...	2.90	...	3.10	3.10	3.10	3.25	3.35	3.50	3.75	3.75
Pennsylvania grade oil in Southwest Pa. Lines (W. Va.)	2.65	...	2.90	...	3.10	3.10	3.10	3.25	3.35	3.50	3.75	3.75
Pennsylvania grade oil in Eureka Lines (Pa.)	2.60	...	2.85	...	3.00	3.00	3.00	3.15	3.25	3.40	3.65	3.65
Pennsylvania grade oil in Buckeye Lines (Ohio)	2.35	...	2.65	...	2.85	2.85	2.85	3.00	3.10	3.25	3.60	3.60
Cabell grade oil in Eureka Lines (W. Va.)	1.50	1.35	1.45	...	1.45	1.45	1.45	1.45	1.45	1.45	1.45	1.45
Corning 25-cent grade oil in Buckeye Lines (Ohio)	1.55	...	...	1.70	1.70	1.70	1.80	1.80	1.80	1.80	1.80	1.90
Corning 35-cent grade oil in Buckeye Lines (Ohio)	1.45	...	...	1.60	1.60	1.60	1.70	1.70	1.70	1.70	1.70	1.80
Somerset in Cumberland Lines (Ky.)	1.60	1.45	1.55	...	1.55	1.55	1.55	1.55	1.55	1.55	1.55	1.55
Ragland grade oil in Cumberland Lines (Ky.)	.95	...	...	...	.95	.95	.95	.95	.95	.95	.95	.95

Amount of Changes in Crude Oil Prices in

(PRICES GIVEN IN DOLLARS PER BARREL)

TEXAS PANHANDLE

Posted by Humble Oil & Refining Co. and Magnolia Petroleum Co.

Gray County—	Jan. 1	Feb. 21	July 26
Below 27 gravity	..	.60	.68
27 to 27.9 gravity	..	.65	.68
28 to 28.9 gravity	.80	.70	.68
29 to 29.9 gravity	.82	.75	.75
30 to 30.9 gravity	.84	.80	.82
31 to 31.9 gravity	.86	.85	.89
32 to 32.9 gravity	.88	.90	.96
33 to 33.9 gravity	.90	.93	1.01
34 to 34.9 gravity	.92	.96	1.06
35 to 35.9 gravity	.94	.99	1.11
36 to 36.9 gravity	.96	1.02	1.16
37 to 37.9 gravity	.98	1.05	1.21
38 to 38.9 gravity	1.00	1.08	1.26
39 to 39.9 gravity	1.02	1.11	1.31
40 to 40.9 gravity	1.04	1.14	1.36
41 to 41.9 gravity	1.06	1.17	1.41
42 to 42.9 gravity	1.08	1.20	1.46
43 to 43.9 gravity	1.10	1.23	1.51
44 gravity and above	1.12	1.26	1.56

Glasscock—
On January 14 the Magnolia Petroleum Co. posted 60 cents; July 26, 65 cents.

Posted by Humble Oil & Refining Co. and Magnolia Petroleum Co.

Carson and Hutchinson Counties—	Jan. 1	Feb. 21	July 26
Below 31 gravity	.75	.60	.69
31 to 31.9 gravity	.75	.65	.69
32 to 32.9 gravity	.75	.70	.76
33 to 33.9 gravity	.75	.73	.81
34 to 34.9 gravity	.75	.76	.86
35 to 35.9 gravity	.75	.79	.91
36 to 36.9 gravity	.75	.82	.96
37 to 37.9 gravity	.75	.85	1.01
38 to 38.9 gravity	.75	.88	1.06
39 to 39.9 gravity	.75	.91	1.11
40 to 40.9 gravity	.75	.94	1.16
41 to 41.9 gravity	.75	.97	1.21
42 to 42.9 gravity	.75	1.00	1.26
43 to 43.9 gravity	.75	1.03	1.31
44 gravity and above	.75	1.06	1.36

Humble Oil & Refining Co. and Magnolia Petroleum Co.

Wheeler County—	Jan. 1	Feb. 21	July 26
Below 29 gravity	.75	.60	.65
29 to 29.9 gravity	.75	.65	.65
30 to 30.9 gravity	.75	.70	.72
31 to 31.9 gravity	.75	.75	.79
32 to 32.9 gravity	.75	.80	.86
33 to 33.9 gravity	.75	.83	.91
34 to 34.9 gravity	.75	.86	.96
35 to 35.9 gravity	.75	.89	1.01
36 to 36.9 gravity	.75	.92	1.06
37 to 37.9 gravity	.75	.95	1.11
38 to 38.9 gravity	.75	.98	1.16
39 to 39.9 gravity	.75	1.01	1.21
40 to 40.9 gravity	.75	1.04	1.26
41 to 41.9 gravity	.75	1.07	1.31
42 to 42.9 gravity	.75	1.10	1.36
43 to 43.9 gravity	.75	1.13	1.41
44 gravity and above	.75	1.16	1.46

ROCKY MOUNTAIN FIELDS

Gravity—	Jan. 1	Jan. 25	Feb. 21	July 26	July 27
28 to 28.9	1.12	....	....	....	1.12
29 to 29.9	1.14	....	1.01	.95	.95
30 to 30.9	1.16	....	1.06	1.02	1.02
31 to 31.9	1.18	....	1.11	1.09	1.09
32 to 32.9	1.20	....	1.16	....	1.16
33 to 33.9	1.22	....	1.19	1.21	1.21
34 to 34.9	1.24	....	1.22	1.26	1.26
35 to 35.9	1.26	....	1.25	1.31	1.31
36 to 36.9	1.28	....	1.28	1.36	1.36
37 and above	1.30	....	1.31	1.41	1.41
Rock Creek (Wyo.)	1.25	....	....	....	1.33
Big Muddy	1.25	....	....	....	1.33
Mule Creek	1.10	....	....	....	1.10
Grass Creek, light	1.33	....	....	....	1.48
Grass Creek, heavy	.90	....	....	....	.90
Elk Basin	1.33	....	....	....	1.48
Lance Creek	1.33	....	....	....	1.48
Poison Spider	1.00	....	....	....	1.00
Notches	.65	....	....	....	.65
Rex Lake	1.10	....	....	....	1.10
Osage	1.33	....	....	....	1.48
Lost Soldier	.95	....	....	....	.95
Greybull-Torchlight	1.33	....	....	....	1.48
Hamilton Dome	.85	....	....	....	.85
Cat Creek (Mont.)	1.33	....	....	....	1.48
Sunburst	1.35	1.50	....	*1.65	1.65
Artesia (N. Mex.)	1.00	....	....	....	1.08
Hogback	1.33	....	....	....	1.48

Note: Rock Creek, Big Muddy, Mule Creek, Grass Creek light and heavy, Elk Basin, Lance Creek, Rex Lake, Sunburst and Artesia posted by Ohio Oil Co.; all others and Grass Creek light posted by Midwest Refining Co.

*Effective May 18.

CANADIAN FIELDS

Imperial Oil Co., Ltd.

	Jan. 1	Feb. 10	July 27
Oil Springs	2.18	2.02	2.07
Petrolia	2.11	1.95	2.00

OKLAHOMA, KANSAS, NORTH AND EAST CENTRAL TEXAS

	Jan. 1	Jan. 1*	Feb. 16*	Feb. 21†	July 26	Aug. 2*
Below 24 gravity	....	....	....	.76	.60	.60
24 to 24.9	....	....	....	.76	.60	.60
25 to 25.9	....	....	....	.81	.67	.67
26 to 26.9	....	....	....	.86	.74	.74
27 to 27.9	....	....	....	.91	.81	.75
Below 28 gravity‡	1.10	1.05	.75	....	....	....
28 to 28.9	1.12	1.05	.75	.96	.88	.75
29 to 29.9	1.14	1.05	.75	1.01	.95	.75
30 to 30.9	1.16	1.16	.90	1.06	1.02	.90
31 to 31.9	1.18	1.18	1.05	1.11	1.09	1.05
32 to 32.9	1.20	1.20	....	1.16	1.16	1.16
33 to 33.9	1.22	1.22	....	1.19	1.21	1.21
34 to 34.9	1.24	1.24	....	1.22	1.26	1.26
35 to 35.9	1.26	1.26	....	1.25	1.31	1.31
36 to 36.9	1.28	1.28	....	1.28	1.36	1.36
37 to 37.9	1.30	1.30	....	1.31	1.41	1.41
38 to 38.9	1.32	1.32	....	1.34	1.46	1.46
39 to 39.9	1.34	1.34	....	1.37	1.51	1.51
40 to 40.9	1.36	1.36	....	1.40	1.56	1.56
41 to 41.9	1.38	1.38	....	1.43	1.61	1.61
42 to 42.9	1.40	1.40	....	1.46	1.66	1.66
43 to 43.9	1.42	1.42	....	1.49	1.71	1.71
44 to 44.9	1.44	1.44	....	1.52	1.76	1.76
45 to 45.9	1.46	1.46	....	1.55	1.76	1.76
46 to 46.9	1.48	1.48	....	1.58	1.76	1.76
47 to 47.9	1.50	1.50	....	1.61	1.76	1.76
48 to 48.9	1.52	1.52	....	1.64	1.76	1.76
49 to 49.9	1.54	1.54	....	1.67	1.76	1.76
50 to 50.9	1.56	1.56	....	1.70	1.76	1.76
51 to 51.9	1.58	1.58	....	1.73	1.76	1.76
52 and above	1.60	1.60	....	1.76	1.76	1.76
Corsicana heavy	1.10	1.00	....	....	....	....

Note—Gravity price schedule includes postings of all major companies in field with exceptions shown.

Postings by: Prairie Oil & Gas Co., The Texas Company and Sinclair Crude Oil Purchasing Co., includes Oklahoma, Kansas and North Texas. Magnolia Petroleum Co., includes Oklahoma, Kansas, North Texas, Panola County in East Texas, Lytton Springs in Southwest Texas. Humble Oil & Refining Co., includes North Texas. Ranger, Mexia, Powell, Richland, Wortham, Currie, Moran, Nocone, Lytton Springs and Corsicana light. Carter Oil Co. and Gypsy Oil Co., includes Oklahoma and Kansas.

*Posted by Magnolia Petroleum Co. only.

†Adopted by all companies except Magnolia maintained old schedule set February 16 on all oil below 32 gravity.

‡Carter Oil Co. and Humble Oil & Refining Co. paid 2 cents differential all crude below 28 gravity on January 1, except Humble stopped with all oil below 25 gravity at 90 cents.

Iatan, including
Refining Co. and Mag
gravity of 30 to 31.
cents except Chalk cr
was posted at flat 93

Crane, Upton, Pecos a

Note: Gravity pr
Kay County Gas Co.

MIDC

Lima
Wooster
Illinois
Indiana
Princeton
Plymouth
Waterloo
Western Kentucky
Oil City, Ky.*

Cumberland, Barre
Pickett Counties in Te
1, $1.50.

†A premium of 20

*Oil City, Ky., crud
on September 1 at $1.6

Saginaw (Saginaw sand
Saginaw (Brea sand)

Note: Saginaw, Mi

N

Panuco heavy (f.o.b. Tam
Production tax Panuco
Export tax Panuco

Note: Due to the fa
negligible factor, prices w

CALIFORNIA

Standard Oil Co.-Union Oil Co.*

Gravity—	Signal Hill Athens Alamitos Heights Olinda-Brea Seal Beach Hunt. Beach Richfield Rosecrans-Dominguez Torrance-Inglewood 1 Jan.1	1 Aug.15	Whittier La Habra 2 Jan.1	2 Aug.15	Buena Vista Kern River† Newhall-McKittrick Midway-Sunset Elk Hills Lost Hills 3 Jan.1	3 Aug.15	Coyote 4 Jan.1	4 Aug.15	Santa Fe Springs 5 Jan.1	5 Aug.15	Coalinga 6 Jan.1	6 Aug.1
14 to 14.9	.85	..	.85	.85	.75	.75	.85	.85	..	..	.75	.7
15 to 15.9	.85	..	.85	.85	.75	..	.85	.85	..	..	.75	.7
16 to 16.9	.85	..	.85	.85	.75	..	.85	.85	..	..	.75	.7
17 to 17.9	.85	..	.85	.85	.75	..	.85	.85	..	..	.75	.7
18 to 18.9	.85	..	.85	.85	.75	..	.85	.85	..	..	.75	.7
19 to 19.9	.85	..	.85	.85	.75	..	.85	.85	..	..	.75	.7
20 to 20.9	.85	.85	.85	.85	.77	.77	.85	.85	..	..	.76	.7
21 to 21.9	.86	.89	.85	.88	.79	.79	.86	.88	.85	.89	.77	.7
22 to 22.9	.87	.93	.85	.91	.81	.82	.87	.91	.85	.92	.78	.8
23 to 23.9	.88	.97	.85	.94	.83	.86	.88	.94	.85	.95	.79	.8
24 to 24.9	.89	1.01	.85	.97	.85	.90	.89	.97	.85	.98	.80	.8
25 to 25.9	.90	1.05	.86	1.00	.87	.95	.90	1.00	.86	1.01	.81	.9
26 to 26.9	.92	1.09	.87	1.04	.89	1.00	.91	1.04	.87	1.04	.83	.9
27 to 27.9	.94	1.13	.88	1.08	.91	1.05	.92	1.08	**.88**	**1.07**	.85	.9
28 to 28.9	.96	1.17	.89	1.12	.93	1.10	.93	1.12	.89	1.10	.87	1.0
29 to 29.9	.98	1.21	.90	1.16	.96	1.16	.94	1.16	.91	1.15	.89	1.0
30 to 30.9	1.00	1.25	.91	1.20	.99	1.22	.95	1.20	.93	1.20	.91	1.1
31 to 31.9	1.03	1.30	..	..	1.02	1.28	..	..	.95	1.25	.93	1.1
32 to 32.9	1.06	1.35	..	..	1.05	1.34	..	..	.97	1.30	.95	1.1
33 to 33.9	1.09	1.41	..	..	1.08	1.40	..	..	.99	1.35	.97	1.2
34 to 34.9	1.12	1.47	..	..	1.11	1.46	..	..	1.01	1.40	.99	1.2
35 to 35.9	1.15	1.53	..	..	..	..	..	..	1.03	1.45	1.01	1.3
36 to 36.9	1.18	1.59	..	..	..	..	..	..	1.06	1.50	..	..
37 to 37.9	1.21	1.65	..	..	..	..	..	..	1.09	1.55	..	..
38 to 38.9	1.24	1.71	..	..	..	..	..	..	1.12	1.60	..	..
39 to 39.9	1.27	1.77	..	..	..	..	..	..	**1.15**	**1.65**	..	..
40 to 40.9	1.30	1.83	..	..	..	..	..	..	..	..	..	..
41 to 41.9	1.33	1.89	..	..	..	..	..	..	..	..	..	..
42 to 42.9	1.36	1.95	..	..	..	..	..	..	..	..	..	..

*Column 1—Signal Hill, Seal Beach, Alamitos Heights and Huntington Beach crudes, 14 to 32.9 degrees, inclusiv
and Inglewood, 14 to 28.9 degrees; Dominguez, Rosecrans and Athens, 24 to 42.9 degrees.

Column 3—Kern River, Newhall and McKittrick, 14 to 19 degrees; Midway-Sunset, Buena Vista and Elk Hills,

†Standard Oil Co. of California discontinued new purchases of Kern River crude and posted the following prices O
cents; 12 to 12.9 gravity, 55 cents; 13 to 13.9 gravity, 65 cents. On October 20 all grades between 12 gravity and 19

de Oil Prices in All Fields

AS, NORTH AND EAST RAL TEXAS

Jan. 1	Jan. 1*	Feb. 16*	Feb. 21†	July 26	Aug. 2*
..	....	....	.76	.60	.60
..	....	....	.76	.60	.60
..	....	....	.81	.67	.67
..	....	....	.86	.74	.74
..	....	....	.91	.81	.75
10	1.05	.75	....	....	....
12	1.05	.75	.96	.88	.75
14	1.05	.75	1.01	.95	.75
16	1.16	.90	1.06	1.02	.90
18	1.18	1.05	1.11	1.09	1.05
20	1.20	....	1.16	1.16	1.16
22	1.22	....	1.19	1.21	1.21
24	1.24	....	1.22	1.26	1.26
26	1.26	....	1.25	1.31	1.31
28	1.28	....	1.28	1.36	1.36
30	1.30	....	1.31	1.41	1.41
32	1.32	....	1.34	1.46	1.46
34	1.34	....	1.37	1.51	1.51
36	1.36	....	1.40	1.56	1.56
38	1.38	....	1.43	1.61	1.61
40	1.40	....	1.46	1.66	1.66
42	1.42	....	1.49	1.71	1.71
44	1.44	....	1.52	1.76	1.76
46	1.46	....	1.55	1.76	1.76
48	1.48	....	1.58	1.76	1.76
50	1.50	....	1.61	1.76	1.76
52	1.52	....	1.64	1.76	1.76
54	1.54	....	1.67	1.76	1.76
56	1.56	....	1.70	1.76	1.76
58	1.58	....	1.73	1.76	1.76
60	1.60	....	1.76	1.76	1.76
10	1.00	....	....	....	....

udes postings of all major companies in field

., The Texas Company and Sinclair Crude Oil ansas and North Texas. Magnolia Petroleum Texas, Panola County in East Texas, Lytton Oil & Refining Co., includes North Texas. tham, Currie, Moran, Nocone, Lytton Springs and Gypsy Oil Co., includes Oklahoma and

o. only.

Magnolia maintained old schedule set Febru-

& Refining Co. paid 2 cents differential all except Humble stopped with all oil below 25

WEST TEXAS

Iatan, including Howard and Westbrook Fields. On January 1 the Marland Refining Co. and Magnolia Petroleum Co. were paying $1.05 for crude with average gravity of 30 to 31. On January 14 Magnolia posted Howard County crude at 60 cents except Chalk crude which was posted 80 cents. The balance of Iatan crude was posted at flat 93 cents.

	Jan. 1	July 26
Crane, Upton, Pecos and Crockett Counties	.60	.65

Note: Gravity price schedule includes postings by Humble Oil & Refining Co., Kay County Gas Co. and the Gulf Refining Co., except as shown.

MIDDLE WESTERN STATES

Ohio Oil Co.

	Jan. 1	Feb. 10	Feb. 23	July 18	July 27	Sept. 17	Oct. 17
Lima	1.71	1.55	....	....	1.60	....	1.60
Wooster	1.57	....	....	....	1.67	....	1.77
Illinois	1.60	....	1.50	..	1.55	....	1.55
Indiana	1.48	1.32	....	....	1.37	....	1.37
Princeton	1.60	....	1.50	....	1.55	....	1.55
Plymouth	1.33	....	1.23	....	1.28	....	1.28
Waterloo	1.35	..	....	....	....	....	1.35
Western Kentucky	1.33	....	....	1.48	....	1.63	1.63
Oil City, Ky.*	1.50	....	....	1.55	....	....	1.55

Cumberland, Barren†, Clinton and Monroe Counties in Kentucky, and Clay and Pickett Counties in Tennessee posted by Paragon Development Co. Price January 1, $1.50.

†A premium of 20 cents is paid for Barren County crude.

*Oil City, Ky., crude was posted by Stoll Oil Refining Co. at $1.55 on July 20, on September 1 at $1.65, on October 1 at $1.75.

	Jan. 1	Feb. 10
Saginaw (Saginaw sand)	2.05	1.89
Saginaw (Brea sand)	1.95	1.79

Note: Saginaw, Mich., crudes posted by Sun Oil Co.

MEXICAN CRUDES

	Jan. 1
Panuco heavy (f.o.b. Tampico)	1.15
Production tax Panuco	.12568
Export tax Panuco	.04928

Note: Due to the fact that the exportation of Tuxpam light crude has become a negligible factor, prices will no longer be published.

CALIFORNIA

Standard Oil Co.-Union Oil Co.*

	Whittier La Habra 2		Buena Vista Kern River† Newhall-McKittrick Midway-Sunset Elk Hills Lost Hills 3		Coyote 4		Santa Fe Springs 5		Coalinga 6		Wheeler Ridge 7		Ventura 8		Montebello 9		Orcutt 10	
ug.15	Jan.1	Aug.15	Jan.1	Aug.15	Jan.1	Aug.15	Jan.1	Aug.15	Jan.1	Aug.15	Jan.1	Aug.15	Jan.1	Aug.15	Jan.1	Aug.15	Jan.1	Aug.15
..	.85	.85	.75	.75	.85	.85	..	..	.75	.75	.75	.75	.85	.85	.85	.85	..	.85
..	.85	.85	.75	..	.85	.85	..	..	.75	.75	.75	.75	.85	.85	.85	.85	..	.85
..	.85	.85	.75	..	.85	.85	..	..	.75	.75	.75	.75	.85	.85	.85	.85	..	.85
..	.85	.85	.75	..	.85	.85	..	..	.75	.75	.75	.75	.85	.85	.85	.85	..	.85
..	.85	.85	.75	..	.85	.85	..	..	.75	.75	.75	.75	.85	.85	.85	.85	..	.85
..	.85	.85	.75	..	.85	.85	..	..	.75	.75	.75	.75	.85	.85	.85	.85	..	.85
.85	.85	.85	.77	.77	.85	.85	..	..	.76	.77	.76	.77	.85	.85	.85	.86	..	.85
.89	.85	.88	.79	.79	.86	.88	.85	.89	.77	.79	.77	.79	.85	.86	.85	.89	..	.86
.93	.85	.91	.81	.82	.87	.91	.85	.92	.78	.82	.78	.82	.85	.87	.85	.92	..	.87
.97	.85	.94	.83	.86	.88	.94	.85	.95	.79	.85	.79	.85	.85	.90	.85	.95	..	.90
1.01	.85	.97	.85	.90	.89	.97	.85	.98	.80	.88	.80	.88	.85	.94	.85	.98	..	.93
1.05	.86	1.00	.87	.95	.90	1.00	.86	1.01	.81	.91	.81	.91	.86	.98	.86	1.01	..	.95
1.09	.87	1.04	.89	1.00	.91	1.04	.87	1.04	.83	.94	.82	.94	.87	1.02	.87	1.04	..	.97
1.13	.88	1.08	.91	1.05	.92	1.08	.88	1.07	.85	.98	.83	.97	.88	1.06	.88	1.07	..	..
1.17	.89	1.12	.93	1.10	.93	1.12	.89	1.10	.87	1.02	..	..	.89	1.10	.89	1.10	..	..
1.21	.90	1.16	.96	1.16	.94	1.16	.91	1.15	.89	1.06	..	..	.91	1.14	.90	1.13	..	..
1.25	.91	1.20	.99	1.22	.95	1.20	.93	1.20	.91	1.10	..	..	.93	1.18	.91	1.16	..	..
1.30	..	..	1.02	1.28	..	..	.95	1.25	.93	1.14	..	..	.95	1.23	..	..	..	..
1.35	..	..	1.05	1.34	..	..	.97	1.30	.95	1.18	..	..	.97	1.28	..	..	..	..
1.41	..	..	1.08	1.40	..	..	.99	1.35	.97	1.22	..	..	.99	..	..	..	..	..
1.47	..	..	1.11	1.46	..	..	1.01	1.40	.99	1.26	..	..	1.01	..	..	..	..	..
1.53	..	..	..	..	..	..	1.03	1.45	1.01	1.30	..	..	1.03	..	..	..	..	..
1.59	..	..	..	..	..	..	1.06	1.50	..	..	..	..	1.06	..	..	..	..	..
1.65	..	..	..	..	..	..	1.09	1.55	..	..	..	..	1.09	..	..	..	..	..
1.71	..	..	..	..	..	..	1.12	1.60	..	..	..	..	1.12	..	..	..	..	..
1.77	..	..	..	..	..	..	1.15	1.65	..	..	..	..	1.15	..	..	..	..	..
1.83	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
1.89	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
1.95	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..

Hill
iens
Heights
a-Brea
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Beach
field
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inguez
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rwood

h, Alamitos Heights and Huntington Beach crudes, 14 to 32.9 degrees, inclusive; Richfield and Olinda-Brea, 14 to 30.9 degrees; Torrance inguez, Rosecrans and Athens, 24 to 42.9 degrees.

nd McKittrick, 14 to 19 degrees; Midway-Sunset, Buena Vista and Elk Hills, 14 to 33.9 degrees; Lost Hills, 14 to 34.9 degrees.

continued new purchases of Kern River crude and posted the following prices October 2 on all oil below 14 gravity: 11 to 11.9 gravity, 45 to 13.9 gravity, 65 cents. On October 20 all grades between 12 gravity and 19 gravity were posted at 50 cents.

Average

AVERAGE AND HIGH AN

GASOLINE AND NAPHTH
Oklahoma (Group 3):
50-52 450 endpoint
56-58 450 endpoint
*58-60 437 endpoint (U. S. Motor
*60-62 400 endpoint
*64-66 375 endpoint
68-70 360 endpoint

*Weighted average prices Nov
North Texas:
58-60 437 endpoint (U. S. Motor)
64-66 375 endpoint
64-66 390 endpoint
North Louisiana:
58-60 437 endpoint (U. S. Motor)
Pennsylvania:
52 Naphtha
58 Gasoline
60 Gasoline
64 Gasoline
California:
58-60 437 endpoint (U. S. Motor)

NATURAL GASOLINE—
Oklahoma (Group 3):
Grade A, 72-79.9, 375 endpoint, rec
Grade AA, 80-87.9, 375 endpoint, re
Grade B, 76-83.9, 375 endpoint, rec
Grade BB, 84-92, 375 endpoint, rec
Grade C, 80-90, 375 endpoint, rec.
North Texas:
Grade A, 72-79.9, 375 endpoint, rec
Grade B, 76-83.9, 375 endpoint, rec
Grade C, 80-90, 375 endpoint, rec.
California:
75-85 375-390 endpoint

BURNING OILS—
Oklahoma (Group 3):
41-43 water white Kerosene
42-44 water white Kerosene
North Texas:
41-43 water white Kerosene
Pennsylvania:
43 Kerosene prime white
45 Kerosene water white
California:
38-40 water white Kerosene (high-b
Engine Distillate, 43-44, 445 endpo
Engine Distillate, 42-44, 480 endpo

FUEL OILS—
Oklahoma (Group 3):
Below 18 Fuel Oil, bbl.
24-26 Fuel Oil, bbl.
32-36 Gas Oil (dark)
38-40 Distillate
North Texas:
24-26 Fuel Oil, per bbl.
32-36 Gas Oil (straw)
38-40 Straw Distillate
North Louisiana:
18-20 Fuel Oil, per bbl.
Gulf Coast:
Bunker "C" Fuel, per bbl.
Gas Oil
Pennsylvania:
30-34 Fuel Oil
36-40 Fuel Oil
California:
27-32 Distillate
15-20 Fuel Oil (tidewater) Bunker
27 plus Diesel, per bbl.

LUBRICATING OILS AND W
Oklahoma (Group 3):
100 vis., 3 color, 20-25 cold test
180 vis., 3 color, 23-28 cold test
200 vis., 3 color, 23-28 cold test
180 vis., 5 color, 23-28 cold test
200 vis., 5 color, 23-28 cold test
240 vis., 5 color, 25-30 cold test
150-160 vis. @ 210 Bright Stock
600 steam refined, light green
124-126 White Crude Scale Wax
Pennsylvania:
600 Pennsylvania flash
Pennsylvania Bright Stock
Gulf Coast:
200 vis., 3 color, pale
200 vis., 5-6 color, red
California:
200 vis., 2½-3 color
200 vis., 4½-5 color, red

NEW YORK DOMESTIC MA
58-60 437 U. S. Motor Gasoline
41-43 water white Kerosene
Gas Oil, 32-36 gravity
†Diesel Fuel Oil, 28-30, bbl.
*Bunker "C" Fuel Oil, 14-16, bbl.
28 pale Paraffin Oil
250 red Paraffin Oil
120-122 a.m.p. Wax, lb.
Amber Petrolatum

*Lighterage, 5c a barrel extra.

NEW YORK (Bayonne) EXPO
58-60 437 U. S. Motor Gasoline, cas
Kerosene, standard white, cases
Kerosene, water white, cases
600 steam refined Cylinder Stock, bb
Light 140-150 Bright Stock
Dark 140-150 Bright Stock

LOS ANGELES EXPORT PR
Kerosene, water white
Gasoline, 53-55 437 endpoint

age Prices for the Years 1928, 1927 and 1926

O HIGH AND LOW PRICES FOR REFINED PRODUCTS, BASED ON LOW WEEKLY QUOTATIONS OF THE OIL AND GAS JOURNAL

(Prices Given in Cents per Gallon Unless Otherwise Noted)

	1928					1927					1926				
				Average price					Average price					Average price	
ND NAPHTHA—	Av. pr.			1st	2nd	Av. pr.			1st	2nd	Av. pr.			1st	2nd
up 3):	for yr.	High	Low	6 mos.	6 mos.	for yr.	High	Low	6 mos.	6 mos.	for yr.	High	Low	6 mos.	6 mos.
.....	.0738	.09¼	.05½	.0618	.0858	.0655	.09	.0562	.0709	.0601	.0985	.1125	4085	.0982	.0988
.....	.0741	.09¼	.05½	.0622	.0859	.0649	.0875	.0562	.0699	.0599	.0994	.1175	.0825	.1012	.0985
(U. S. Motor)	.0795	.0971	.05⅝	.0644	.0927	.0667	.09	.0575	.0722	.0613	.1031	.12	.0875	.1053	.1009
.....	.0833	.1035	.06¼	.0701	.0969	.0721	.10	.0625	.0781	.0661	.1122	.1225	.10	.1159	.1085
.....	.0883	.1100	.06¾	.0733	.1039	.0757	.1062	.065	.0826	.0688	.1176	.13	.105	.1229	.1124
.....	.0885	.1125	.07	.0746	.1024	.0799	.1125	.0675	.0881	.0717	.124	.135	.1125	.1301	.1179
ge prices November 27, 20 and 13 as reported by representative refiners. Sales to jobbers only.															
(U. S. Motor)	.0769	.09¾	.05⅝	.0651	.0888	.0604	.09	.0575	.0720	.0588	.1024	.1187	.0862	.1046	.1001
.....	.0849	.10⅝	.06¾	.0722	.0976	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
.....	.0827	.10¼	.06½	.0704	.0951	.0737	.1037	.0625	.0804	.0670	.1155	.13	.1012	.1215	.1035
(U. S. Motor)	.0825	.10¾	.06	.0700	.0949	.0698	.09	.0625	.0739	.0657	.....	.....	.....	.....	.....
.....	.0934	.11¼	.07½	.0825	.1042	.0875	.115	.0737	.0968	.0782	.1175	.135	.1125	.1185	.120
.....	.0982	.12	.07½	.0864	.1101	.0900	.115	.0775	.0986	.0814	.1273	.145	.115	.1295	.125
.....	.1038	.12¾	.08	.0906	.1171	.0974	.125	.0825	.1063	.0885	.1339	.1475	.125	.1365	.131
.....	.1138	.13½	.09	.0972	.1303	.1051	.1325	.0925	.1147	.0954	.1437	.1525	.1325	.146	.141
(U. S. Motor) domestic	.0919	.10½	.07	.0874	.0964	.0873	.105	.08	.0863	.0883	.1134	.125	.09	.1192	.107
SOLINE—															
p 3):															
5 endpoint, rec. 90%	.0744	.10¾	.04⅛	.0549	.0939	.0585	.095	.045	.0612	.0558	.0945	.1062	.0825	.0963	.0927
5 endpoint, rec. 90%	.0734	.10¾	.04⅛	.0541	.0927	.0575	.095	.045	.06	.0549	.....	.....	.....	.....	.....
5 endpoint, rec. 85%	.0691	.10¾	.03⅝	.0474	.0908	.0544	.085	.0412	.0575	.0512	.0887	.105	.0787	.089	.0885
5 endpoint, rec. 85%	.0685	.10¾	.03½	.0469	.0900	.0543	.085	.04	.0575	.0510	.....	.....	.....	.....	.....
endpoint, rec. 78%	.0666	.10¾	.03⅞	.0441	.0892	.0525	.0825	.035	.0562	.0489	.086	.1025	.075	.0859	.0861
5 endpoint, rec. 90%	.0742	.10¾	.04¼	.0549	.0934	.0585	.0962	.045	.0612	.0558	.0959	.1075	.0825	.099	.0927
5 endpoint, rec. 85%	.0691	.10¾	.03⅝	.0475	.0906	.0542	.085	.0412	.0575	.0508	.0926	.105	.0787	.0963	.0888
endpoint, rec. 78%	.0664	.10⅝	.03¼	.0443	.0885	.0519	.0837	.035	.055	.0487	.0866	.1025	.075	.0865	.0867
nt	.0726	.08½	.05½	.0780	.0672	.0903	.125	.07	.1023	.0838	.1465	.17	11	.156	.135
S—															
p 3):															
erosene	.0517	.06½	.04⅛	.0460	.0574	.0461	.0612	.04	.0496	.0426	.0727	.105	.0525	.0729	.0725
erosene	.0556	.06¾	.04⅝	.0503	.0608	.0503	.0675	.0437	.0541	.0465	.0769	.1075	.0562	.0761	.0770
erosene	.0503	.06⅜	.04⅛	.0456	.0550	.0453	.0612	.0362	.0486	.0419	.0728	.1025	.0525	.0733	.0724
hite	.0635	.07½	.05¾	.0582	.0688	.0646	.0825	.055	.0692	.0600	.0885	.12	.0725	.0886	.0895
hite	.0663	.07¾	.06	.0625	.0701	.0666	.085	.0575	.0712	.0619	.0921	.125	.0737	.093	.0912
rosene (high-burning test)	.0611	.06¾	.05½	.0561	.0660	.0583	.07	.05	.0634	.0531	.0745	.09	.07	.0759	.0731
44, 445 endpoint	.0710	.08	.06½	.0707	.0712	.0677	.08	.0425	.0697	.0756	.0919	.11	.0775	.0960	.0875
44, 480 endpoint	.0669	.07½	.06¼	.0662	.0675	.0693	.0775	.04	.0655	.0730	.....	.....	.....	.....	.....
p 3):															
bl.	.6298	.80	.50	.7202	.5394	.8889	1.225	.70	1.0182	.7596	.....	.....	.....	.....	.....
.....	.7694	.85	.55	.8010	.6144	.9792	1.275	.80	1.0990	.8394	1.3072	1.495	1.20	1.2835	1.327
.....	.0247	.02⅝	.02⅜	.0248	.0245	.0299	.045	.0237	.0341	.0257	.0419	.045	.035	.0395	.042
.....	.0313	.03⅜	.03	.0306	.0320	.0353	.0525	.03	.0391	.0315	.0473	.055	.0375	0426	.052
bl.	.0634	.75	.52½	.723	.545	.9981	1.55	.75	1.1902	.8010	1.3904	1.55	1.20	1.3375	1.44
.....	.0231	.02½	.02¼	.0235	.0226	.0284	.0437	.0225	.0333	.0234	.0401	.045	.035	.0384	.04
.....	.0296	.03	.02⅞	.0298	.0294	.0338	.05	.0287	.0375	.0300	.0457	.055	.0375	.0406	.05
bl.	.8394	1.00	.70	.9083	.7702	1.1226	1.30	.90	1.1798	1.0653	1.2346	1.35	1 10	1.199	1.270
bbl.	1.018	1.25	.75	1.1884	.8481	1.5510	1.75	1.25	1.6115	1.4904	1.7059	1.75	1.50	1.6617	1.75
.....	.0416	.04¼	.03⅞	.0421	.0411	.0448	.055	.0387	.1487	.0408	.0532	.0562	.0475	.0511	.055
.....	.0449	.04⅞	.04⅛	.0471	.0427	.0477	.0612	.0375	.0547	.0407	.0591	.065	.055	.0587	.059
.....	.0472	.05	.04¼	.0491	.0452	.0500	.065	.04	.0566	.0433	.0636	.07	.0625	.0636	.064
.....	.0269	.03	.02¼	.0248	.0290	.0319	.035	.0225	.0338	.0299	.0385	.045	.035	.0406	.0364
ater) Bunker	.8692	1.00	.85	.8884	.85	.9221	.925	.85	.8961	.948	.9813	1.00	.925	1.00	.9625
l.	1.15	1.15	1.15	1.15	1.15	1.15	1.15	1.15	1 15	1.15	.....	.....	.....	.....	.....
OILS AND WAX—															
3):															
5 cold test	.06	.06	.06	.06	.06	.0625	.0675	.06	.0642	.0608	.0637	.065	.0475	.0625	.065
8 cold test	.0945	.09¾	.09¼	.0937	.0954	.0981	.10	.0937	.0988	.0973	.101	1.05	.0925	.1008	.105
8 cold test	.0947	.09½	.09¼	.095	.0944	.1032	.1075	.095	.1061	.1002	.1072	.1125	.1025	.1108	.1075
8 cold test	.0911	.09⅛	.09	.0912	.0910	.0945	.0975	.0912	.0960	.0929	.0968	.0975	.0875	.096	.0925
8 cold test	.0922	.09¼	.09	.0925	.0919	.1016	.105	.0925	.1025	.1006	.1068	.1075	.0975	.106	.1075
0 cold test	.1222	.12¼	.12	.1225	.1219	.1251	.13	.1225	.1268	.1233	.1304	.135	.125	.1308	.13
right Stock	.1235	.25	.22	.2242	.2473	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
t green	.08	.08	.08	.08	.08	.0764	.08	.07	08	.0727	.0806	.085	.08	.0813	.08
Scale Wax	.0394	.05	.02½	.0321	.0468	.0294	.0425	.025	.0334	.0254	.0471	.05	.0412	.0482	.046
n	.1789	.29½	.14	.1546	.2031	.1752	.2075	.15	.1873	.1631	.2419	.27	.205	.2667	.2248
tock	.3186	.36	.26½	.2846	.3523	.3326	.37	.28	.3502	.3149	.3954	.415	.37	.3885	.4023
.....	.0906	.10	.07½	.0914	.0898	.1002	.11	.85	.1071	.0932	.1135	.125	.11	.1146	.1123
l	.0800	.08½	.07½	.0771	.0830	.0821	.09	.0725	.0871	.0771	.0971	.11	.095	.0981	.0962
.....	.1057	.11½	.10	.10	.1114	.1058	.11	.10	.1081	.1035	.1298	.135	.105	.135	.1246
ed	.0954	.11½	.08½	.085	.1058	.0909	.095	.085	.0933	.0885	.1148	.12	.09	.12	.1096
MESTIC MARKET—															
Gasoline	.1020	.11¾	.08¼	.0918	.1125	.0941	.13	.08	.1050	.0832	.134	.15	.12	.1377	.1304
osene	.0803	.09	.07½	.0754	.0852	.0768	.105	.065	.0822	.0713	.0948	.11	.07	.0864	.1032
.....	.0530	.05½	.05½	.0534	.0525	.0573	.0625	.055	.0596	.055	.0636	.0675	.055	.0612	.066
, bbl.	2.013	2.10	2.00	2.0268	2.00	2.2269	2.40	2.00	2.3462	2.1077	2.4056	2.50	2.10	2.3188	2.4923
14-16, bbl.	1.188	1.35	1.05	1.3192	1.057	1.6366	1.75	1.35	1.7308	1.5423	1.74	1.75	1.65	1.75	1.75
.....	.0708	.07½	.07	.07	.0715	.0743	.08	.07	.0763	.0722	.....	.....	.....	.....	.....
.....	.1058	.11	.10½	.105	.1065	.1154	.125	.105	.1203	.1104	.....	.....	.....	.....	.....
o.	.0466	.05¾	.03⅞	.0401	.0530	.0429	.0562	.0387	.0467	.0391	.0586	.0612	.0575	.0586	.0586
.....	.0339	.03½	.03¼	.0333	.0346	.0334	.0337	.0325	.0324	.0333	.....	.....	.....	.....	.....
barrel extra. †Lighterage, 6.5c a barrel extra.															
vonne) EXPORT MARKET—															
Gasoline, cases	.2560	.2690	.2365	.2463	.2660	.2494	.279	.239	.2561	.2427	.2033	.294	.2715	.2936	.293
ite, cases	.1731	.1765	.1690	.1714	.1749	.1701	.1915	.1615	.1734	.1667	.189	.1965	.179	.1855	.1925
cases	.1841	.1890	.1790	.1814	.1868	.1771	.2065	.1715	.1855	.1767	.2011	.2115	.194	.1952	.2071
nder Stock, bbls.	.1946	.270	.1650	.1717	.2179	.1798	.20	.165	.1908	.1687	.....	.....	.....	.....	.....
Stock	.4137	.4450	.3600	.3934	.4338	.4289	.46	.40	.4423	.4154	.....	.....	.....	.....	.....
Stock	.3942	.3400	.425	.373	.4156	.4083	.44	.38	.4223	.3942	.....	.....	.....	.....	.....
EXPORT PRICES—															
.....	.0514	.0575	.045	.0483	.0544	.0457	.0575	.04	.0489	.0426	.0535	.055	.05	.0523	.0546
dpoint	.0746	.085	.06	.0666	.0826	.0672	.0875	.0575	.0735	.0608	.096	.11	.08	.0967	.0953

XUM